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General Article

THE DIAGNOSIS OF NAVICULAR DISEASE*

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Permit me, at the outset, to acknowledge the privilege, of which I am sensible, in my having been requested to open, jointly with my esteemed mentor Professor Macqueen, a discussion before the Fellows of this old and honourable Society.

The subject with which I am asked to deal, namely, "The Diagnosis of Navicular Disease," is a well-worn one, but one, nevertheless, which should afford ample scope for an enlightening and profitable discussion.

Dollar, in the 1912 edition of his "Regional Veterinary Surgery and Operative Technique," says "no form of lameness is more mis-diagnosed than navicular disease." If this statement is correct it should be worth while endeavouring to assign reasons for such mis-diagnosis.

Who or what is to blame? Is it due to lack of thoroughness on our part in the examination of the lame animal or to failure to reserve our diagnosis until such time as patient observation has enabled us to make up our mind beyond all reasonable doubt? Or is it that the published accounts of the symptoms of the disease fail to conform to the symptoms exhibited by many of the cases which we encounter?

There is no denying that the writers of such accounts adopted a very cautious attitude, for after describing what we may term the classical picture, they enumerate exceptions to the general rule which leave one wondering on what symptom or symptoms most reliance should be placed. The reference to the pointing of the foot which is often a marked characteristic of the disease is qualified by the statement that "pointing is absent in many cases." A description of the type of foot in which the disease may be expected to occur is followed by the admission that "navicular disease may occur in well-shaped feet."

Thirdly, it is allowed that whilst the onset of the disease is usually insidious, it may occur suddenly. It would be unorthodox, surely, for any of us to diagnose navicular disease in a suddenly occurring lameness, in a good foot and unaccompanied by the characteristic pointing. Nevertheless, I am satisfied, with the aid of X-ray evidence, that such cases do occur, and not uncommonly. I am not disputing that many cases of navicular disease do conform almost exactly to the classical symptoms, and that, as such, their diagnosis presents no difficulty. On the other hand, it is my submission that the prevalence of the atypical case is under-rated and not given the prominence it requires.

With your permission I will endeavour to summarise the clinical picture one expects to find in navicular disease and then outline some of the more marked deviations which it has been my lot to encounter.

The affected animal should be of a type other than heavy draught, with narrow blocky feet. There should be a history of progressively diminished action in front and perhaps of stumbling. After a variable period the loss of action becomes intensified into actual, though probably intermittent, lameness. It is at this juncture that our services are most likely to be called in. We see the animal standing in the stable and note the characteristic pointing of the foot, the affected member being advanced beyond its fellow only a few inches, with perhaps the heel slightly raised. On lifting the foot from the ground the shoe is seen to exhibit excessive wear at the toe. The surface temperature of the foot is raised and pain may be evidenced on firm palpation of the hollow of the heel. We have the animal exercised. The lameness should diminish, or even disappear. We let the animal stand awhile, then have him trotted in hand and find the lameness aggravated. If we keep him under observation for a period, say, some months, the lame foot should get smaller, the heels contract, the frog atrophy, the sole become vaulted and the pastern more upright.

The symptoms here are perfectly clear and reliable, but in many cases they are less equivocal. If there is a doubt we may have a bar shoe, fitting closely up against the frog, applied. If the case is one of navicular disease the lameness is usually increased. It is a test which has often afforded me valuable assistance.

Further, we may attempt to localise the lameness by cocainisation of the plantar nerves, but here I have encountered some queer vagaries. Last autumn I cocained a clear case of navicular disease twice, at an interval of three weeks. In neither case was the lameness alleviated in the slightest. The day following the second injection the horse was destroyed and *post-mortem* showed everything that had been anticipated.

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If a positive result is obtained with such local anæsthesia material assistance is gained, not of course by itself enabling one to diagnose navicular disease but by referring the seat of lameness to below the fetlock. To negative results I pay far less attention.

Now as to variations on that classical picture.

(1) *Suddenness of Onset.*—I regard this, not as being rare, but as fairly common. As far as recent literature is concerned, Hodgkins recorded in case in 1932. May I quote another? In August last a light-draught mare, but on the heavy side according to that classification, was found very lame off fore on being taken out of the stable. She was eight years of age, clean-legged and had no previous record of sickness or lameness. This mare had trotted past me at weekly inspection every Thursday for the previous year and eight months. She was a grand mover, had good feet and had never shown the faintest suggestion of grogginess. On examination there was no sign of trauma to be found and she stood well and levelly on the lame leg, but at a slow trot the lameness was severe. There was no tenderness on percussion of the foot and the only real objective symptom was heat, equally evident at the toe, quarters and heels. Three weeks of palliative treatment effected no improvement, so the animal was examined under the X-rays. The films showed a large erosion in the navicular bone. She was destroyed forthwith and the X-ray report vindicated by autopsy. I cite this case *in extenso* because I can conceive nothing more liable to conflict with our general ideas of navicular disease than suddenly occurring lameness of this kind. I suggest that without X-ray assistance, for many of us, a correct diagnosis could only have been arrived at after very long observation, if at all.

The question of suddenness or slowness of onset is, in the usual course of events, a fact elicited when enquiries are made into the history of the case. Histories given by owners may be reliable or otherwise, and I do not propose to say much about the matter. There is, however, one question regarding the history of the animal which I regard it as extremely important to ask. That question is: "Did the animal undergo a period of rest prior to the onset of the symptoms?" If the answer is in the affirmative, I consider that we have acquired an item of information which strengthens materially any suspicion of navicular disease.

There is nothing new in this view, of course. Turner makes reference to idleness as a predisposing or exciting cause—whichever you like—in his description of the disease published in 1829. So does the late Sir Frederick Smith in 1886. My experience in this respect accords with theirs. Rest need not be absolute to be followed by navicular disease. Insufficient exercise, say, only half-an-hour a day, over a long period is as bad as roughing an animal up in a restricted space for from three to six months.

It is a common experience to those of us who have dealt with polo ponies in India to have met with an incident of the following kind: An owner is proceeding to England on some months' leave. He leaves behind him in India half-a-dozen sound ponies. To save labour and expense he reduces his number of grooms to a minimum. The animals are roughed up, just watered and fed, but not exercised. On his return, the owner starts to bring them into slow work again, but within the space of a few weeks two or three of them are lame and are shown subsequently to have developed navicular disease.

Rest as a factor in the production of the disease is reconcilable to the theory of compression, which is regarded by Smith as the most common excitant of the malady. However, let me pass on to some other symptoms which may be irregular.

(2) *The Characteristic "Pointing."*—The number of cases, verified on *post-mortem*, which never exhibited this symptom is far from negligible, and in the Army one has good facilities for observation. Cases are hospitalised, attendants often understand the significance of "pointing" and are quick to observe and report it, whilst one can walk round quietly alone at frequent intervals during the day and watch for indications of this nature.

(3) *Diminution of the Lameness on Exercise.*—I would value some expressions of opinion on this point. I suggest that the degree of lameness is frequently unchanged or even exaggerated by exercise.

(4) *Heat in the Foot.*—I am struck by the variations of surface temperature which occur, for no evident reasons, in the feet of horses free from lameness. This symptom of heat is only of value, to my mind, when shown to be constant over a considerable period. Even then by itself it is only a general indication of possible foot trouble. Many cases of navicular disease never manifest it at all.

(5) *Pain in the Heel.*—I have seldom been able to detect this to my satisfaction. I have tried palpation both with my fingers and with different kinds of forceps, but the information gained has very rarely helped.

(6) *The Type of Foot and Subsequent Changes in the Shape of the Foot.*—These are valuable indications when present, but I suggest that if we are going to wait for changes in the shape of the hoof to occur our diagnosis will, not infrequently, be held up interminably. Plenty of cases of lameness, shown by autopsy to have been attributable to navicular disease, retain good equal feet until they are destroyed, sometimes after two or three years of intermittent

lameness. This may be capable of explanation by the fact that navicular disease may be present in spite of the absence of "pointing" of the foot, for presumably the more marked the "pointing" the more speedily do changes in the shape of the hoof occur. The absence of alteration in the shape of the feet should never be accepted as evidence that navicular disease is not the cause of lameness.

You will glean, doubtless, from these remarks that I regard navicular disease as a form of lameness which may give rise to symptoms of a widely-variable character. If the classical symptoms are present diagnosis is seldom difficult and usually less so in unilateral lameness than when both legs are affected. On the other hand, it is encountered frequently in the absence of the symptoms spoken of as being of the most diagnostic value.

DIFFERENTIAL DIAGNOSIS

Now as to differential diagnosis. The undermentioned are perhaps the more common conditions which tend to confuse the issue:—

(1) *Corns.*—A corn arising from the causes usually quoted, such as faulty shoeing, generally responds to treatment fairly quickly. If accompanied by marked lameness, the pointing of the foot is more extensive than in classical navicular disease. However, not all corns are attributable to faulty shoeing, and they may arise as complications of navicular disease or of pedal ostitis. The difficulty, then, is to apportion the blame, and if the corn is recalcitrant one may be left wondering how much of the lameness is due to the corn and how much is due to navicular disease. Patience is necessary, but if with treatment the corn fails to resolve, the probability is that it is a manifestation of deeper trouble within the hoof, with the odds perhaps a little more in favour of pedal ostitis than of navicular disease.

(2) *Pyramidal Disease.*—Apart from the presence of any palpable enlargement and deformity of the hoof head, the gait in pyramidal disease should divide it sharply from that of navicular disease.

In passing, may I comment on the apparent rarity of ringbone, both high and low, in Army horses. In over 400 X-ray examinations for obscure lameness, a considerable percentage of which were checked by *post-mortem* examination, only two cases of high ringbone were encountered, and one of these was so obvious that the examination was conducted for reasons of academic interest only. A third case which showed nothing under X-rays was considered by some to show disease of the pyramidal process on *post-mortem*, but I was unable to satisfy myself on the point.

My experience is that low ringbone and navicular disease ought not to be confused.

(3) *Pedal Ostitis.*—Are we ever justified in using such a diagnosis? Does such a condition exist as an independent cause of lameness? What exactly do we mean by the term? My clinical and pathological experiences are in agreement with those recorded by G. F. Steevenson in *The Journal of the R.A.V.C.* for February, 1932. Many pedal bones, some from horses which have never been lame, show on *post-mortem* examination evidence of an ostitis, usually best marked in the neighbourhood of the basilar and retrossal processes. Steevenson suggests that if this occurs slowly the surrounding tissues accommodate themselves to the new growth of bone and that lameness does not occur. If, on the other hand, it occurs suddenly and osteophytes are formed rapidly, lameness is produced.

Observations made *post-mortem* show me that four cases out of five diagnosed as pedal ostitis are really misdiagnosed cases of navicular disease, but that the fifth is a true case of pedal ostitis. Have we any means of differentiating clinically between pedal ostitis and atypical cases of navicular disease? The difficulty I see in answering that question is that I believe most cases of pedal ostitis recover their soundness and therefore one cannot check up *post-mortem*. Nevertheless, in cases diagnosed as pedal ostitis I have noticed the following four facts:—

(*a*) The subject is seldom over six years old. Of course, you encounter navicular disease in horses of similar age, but I consider it less common, and when it does occur it is usually of the classical type.

(*b*) Heat at the quarters and heels, and very often tenderness of the sole, is prominent and constant.

(*c*) The operation of hoof-section gives relief. I have never seen it do any good in a proved case of navicular disease.

(*d*) Lameness is worsened by applying a high-heeled shoe and ameliorated by a bar-shoe: exact opposites of one's usual experience in navicular disease.

(4) *Contracted Hoof or Hoof-binding.*—I mention this solely to promote a further avenue of discussion. Some ascribe it to the cumulative effects of faulty shoeing or to defective nutrition. I can only say that all the lameness associated with contraction of the hoof that I have seen has been due to navicular disease.

(5) *Sprain of the Coronary Joint.*—This is not worth while mentioning unless you admit the sometimes sudden onset of navicular disease. The cardinal differentiating symptom ought to be the manifestation of pain on passive rotation of the joint, an indication which may sound very convincing in print but one on which it may be more difficult to make up one's mind in practice.

I will say no more about this aspect of

navicular disease. It is the bane of the light horse, and unless very obvious evidence to the contrary is available a diagnosis of navicular disease is far more likely to be accurate in cases of obscure foot lameness than one of nebulous low ringbone or simple contracted hoof.

The variations in the symptoms shown by animals proved to have been afflicted with navicular disease may well raise the question of the degree of individuality which should be apportioned to its clinical manifestations. Is it not possible that we are dealing with two or more separate entities? Firstly, navicular disease arising as a rarefying ostitis within the bone itself, and, secondly, a form of lameness commencing as a simple sprain of the deep flexor in this location. If such sprains do occur surely the anatomical structure of the region must be unfavourable for any kind of repair taking place. The controversy as to whether the disease starts in the bone or in the tendon raged for years and such a shrewd observer as Dick believed that the tendon was implicated first. I think it is proved fairly conclusively that most cases do commence in the bone, but I am by no means sure that disease arising from sprain of the tendon can be excluded altogether.

I do not profess to be able to distinguish between the two conditions clinically, but the widely varying *post-mortem* picture lends some support to such a view. One sees cases in which the tendon shows the grossest lesions but in which the bone lesion is very slight, the interior of the bone appearing normal and the stratiform cartilage involved only to the extent of what appears to be a nodular chondritis. Are these cases in which the primary seat of disease has been in the tendon?

Yet another point—if a navicular bone affected with rarefying ostitis is weighed it will be found to be perceptibly lighter than normal, which is what one would expect. I have been unable to detect such variations in weight in cases showing gross lesions in the tendon but only slight changes in the cartilage.

The suggestion I put forward is that if you have disease in the navicular region arising from two different causes and leading to pathological changes of two different types, may not variations in the symptoms manifested be expected to occur? Or, to look at the question from another standpoint, Professor Mitchell has shown that navicular disease may be accompanied by osteo-arthritic changes in other joints. Surely the symptoms of navicular disease are likely to be modified if the subject has in addition an osteo-arthritic lesion in, say, the fetlock, knee or elbow.

Lastly, a few words concerning the radiological diagnosis of the disease. From the time it was first found possible to demonstrate the navicular bone, I X-rayed just over 150 cases of obscure lameness. My successor at Aldershot, Major Oxspring, must have done more than double that number. Two-and-a-half years ago, in a paper given before the Royal Counties Division, I said that whilst we could diagnose some cases of the disease by the presence of osteophytes and by added width of the bone, we had not succeeded in demonstrating carious areas. Very shortly after that we did succeed, and I am satisfied that it is now comparatively rare to fail to demonstrate an erosion. I do not wish to overstate the case for the X-rays in the least. Few things are 100 per cent. perfect, but I regard the radiological exploration of the navicular region as a most important ancillary in doubtful cases and one which will, time after time, reveal rapidly and surely the true seat of an obscure lameness.

I thank you for your kind and patient hearing.

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Discussion

Professor James Macqueen, who opened the discussion on the foregoing paper, said that Major Pryer had given them so thorough and comprehensive a description of the diagnosis of navicular disease that evening that there was not very much for him to say; he seemed to have covered the ground almost completely. There were, however, a few points to which he might refer, because he was not quite in agreement with all that Major Pryer had said.

His experience of navicular disease had almost forced him to consider it in two stages: one was incipient, or commencing navicular disease, and the other was the chronic or established case of navicular disease.

Restricting his remarks to the diagnosis of the disease, he must say that he had never felt any great difficulty in diagnosing chronic navicular disease, but the incipient case often presented a puzzle to any person, young or old, and it was that sort of case that misled a great many practitioners. Recently they had resorted to the use of X-rays to assist them in the diagnosis of these early cases. He had looked at a good many radiographs of the navicular bone, but he must say that very seldom had he been able to find a radiograph that plainly showed the superficial lesion of incipient navicular disease. No doubt there were shadows or slight indications, but to a person who must make a definite statement regarding the nature of the disease, radiographs were not very helpful. The type of navicular disease case which could be readily diagnosed was that in which the lesion was well established and marked. He might interpolate at that stage a communication which he received the previous night from a very highly respected member of that society, Mr. Mark Tailby, of Birmingham. Mr. Tailby had written to him and enclosed a

specimen of a navicular bone showing lesions of the disease which he thought would be a good illustration of the affection. Mr. Tailby had asked that the bone should be returned, as it was an old associate of somewhere between 50 and 60 years' practice. It was a very definite case of navicular disease.

Going back to some of the remarks that were made by Major Pryer; navicular disease, in his experience, began without lameness. There was no evidence of lameness at first. The first change was a loss of action; a horse which had been known to have extra good action began to lose some of it, especially when going down hill. At that stage there was no alteration in the shape of the foot; there might be an increase of local temperature, but that was not a very convenient test for the reason that palpation required to be repeated frequently in order to derive any information from it. The next change was probably observed in the course of a month or two; some cases developed very slowly, some exceedingly rapidly, but the complaint that reached the veterinary surgeon after these premonitory symptoms was that the horse occasionally was momentarily lame, but often no more attention was paid to it. Then there came a time, in the course of a few months or so, when the owner or his groom complained about the lameness being more frequent. The veterinary surgeon was sent for and he found, on testing the horse by trotting in hand, that the animal was quite sound in action; consequently, nothing more might be done. That sort of thing went on in some cases indefinitely; in course of time, however, other symptoms followed and led to a diagnosis of navicular disease.

With regard to pointing, which, when properly observed and estimated was a very reliable symptom of navicular disease, frequently when the question was asked at the stable as to whether or not the horse pointed one would be told that the horse did not point at all. If one took the trouble to watch the horse one would find that he did point, according to the veterinary view of pointing. As Major Pryer had said, the pointing was usually limited to two or three inches, and if one looked closely to the position of the foot one would find that the heel was slightly eased. There was the pointing of fatigue, and pointing indicative of corn, or bruised sole, but in these cases the pointing was much more extensive.

Concerning the shape of the foot, he agreed with Major Pryer that there were cases of navicular disease in which there was very little appreciable alteration in the shape of the foot, but in the chronic case of navicular disease one would usually find considerable alteration.

In regard to the sudden onset of lameness in navicular disease, he thought that if one took time to consider and weigh up the circumstances, one would find that the horse had been slightly lame at intervals for a considerable time. In many of those cases he had found that there was a knowledge of slight lameness extending over several months prior to the veterinary surgeon being called in.

Concerning the average symptoms of an established case, there should be no difficulty in diagnosing navicular disease. To take, for example, the one-sided case, if one took time to examine the affected foot and compared it with the other, noting the coronet, the sole, the frog, the heels, and the behaviour of the horse when subjected to exercise, one should be able to diagnose navicular disease. There was a difficulty sometimes where more than one defect existed in the lame limb.

Major Pryer had referred to the existence of corn. If a horse had a corn in an active state it might also be suffering from navicular disease; how was one to arrive at a definite diagnosis in such a case as that? Under exercise, a horse suffering from corn did not improve in action, and the only thing to do was to treat the corn and restore the foot to a proper condition as regards corns, and then proceed to diagnose navicular disease.

Navicular disease affecting both fore feet was a little more troublesome in diagnosis than when it was confined to one foot. In such a case one had a doubt as to whether the defective gait was really due to disease or to naturally low action. Some horses had a short step, and in old horses one might be misled by it.

He had not been able to confuse pyramidal disease, or any disease of the upper part of the pedal bone, with navicular: that, he thought, was a mistake that should not often occur. Pedal ostitis, again, ought not to confuse anyone in diagnosing navicular disease. In some cases of suppurating corn the ground surface of the os pedis became studded with small osteophytes, and these caused some alteration in the action of that foot; but if the general symptoms of navicular disease were not present at that time, a close examination of the heels ought to lead to the discovery of the presence of these osteophytes.

Major Pryer had said that he had seen no benefit from hoof section in navicular disease. It was a remarkable fact that hoof section, in a well-developed case of navicular disease, afforded a certain amount of relief and that if a case so treated were turned out it was quite likely that it would come up from pasture very much improved. He could not, however, explain why hoof section should relieve the lameness in a chronic case. The characteristic contraction of the foot might be a contributing cause of the lameness exhibited, and therefore it might be that when the hoof was grooved at the quarters a certain amount of compression was relieved.

The essayist was not quite convinced as to the mode of extension of the disease. Many observers

nowadays believed that the disease originated in the navicular bone; then it spread to the stratiform fibro-cartilage, then to the navicular bursa, which was so intimately related to the fibro-cartilage of the navicular bone, and lastly to the perforans tendon, although this order of extension had not been proved. In the average established case the tendon presented some roughening; in another case a little further advanced they would find that the perforans tendon had contracted adhesions with the navicular bone.

With regard to symptoms and lesions, in the incipient case where probably the disease was restricted to the bone and the stratiform fibro-cartilage, the lameness might not be very great; it was likely to be intermittent and somewhat variable in degree. When the navicular sheath was involved the horse might be exceedingly lame. In combination with the bursitis of the navicular sheath there was also erosion of the stratiform fibro-cartilage. He had found, in cases where the navicular sheath was involved and the horse was exceedingly lame, that extension to the perforans tendon had occurred. When once the perforans tendon became adherent to the navicular bone they would find that the lameness was continuous, though it varied in degree under exercise.

He was looking forward, before coming there, to hearing from Major Pryer how he would diagnose navicular disease in its incipient stage. In cases in which there was a doubt about the ordinary symptoms the changes in the foot might not be very noticeable, and although the heels were noticeably contracted it was doubtful whether the local symptoms directly indicated navicular disease. In such cases, if an X-ray picture showed a slight lesion of the tendinous surface of the navicular bone then it would be a great advantage, but he had never seen a radiograph that indicated such a lesion.

He had with him a navicular bone which illustrated the incipient case of which he was speaking. It showed a superficial lesion, but he was perfectly certain that the X-ray would not discover it. In those cases in which there was perforation of the tendinous surface, the X-ray, of course, would show the lesion at once, but there were others which might escape discovery by that apparatus.

Before sitting down, there was a further point to which he would like to allude, and that was the formation of osteophytes towards the extremities of the navicular bone. Major Pryer, in a paper he read a year or so ago, referred to their presence as being almost a constant feature. He (Professor Macqueen) had many navicular bones, and since the announcement of that meeting he had taken the trouble to examine those bones, which had not been boiled, so that any indication of the existence of osteophytes towards the extremities could easily be seen, but he was bound to say that in a collection of 50 there were only one or two that showed any sign of osteophytic formation. The other lesions of navicular disease were quite evident, but the formation of those adventitious growths of bone towards the extremities of the navicular were conspicuous by their absence. He did not venture to say that Major Pryer was mistaken: what he did say was that those osteophytes did occur in certain cases, but that they were not a constant feature in navicular disease.

Professor J. G. Wright said that the clinical diagnosis of navicular disease without recourse to radiography must at the most be a tentative one. The bone occupied such a secluded position in the foot and the lesions associated with it were so small that nothing positive could be ascertained at examination. There was, however, one positive aid to diagnosis. By the blocking of the plantar nerves by the peri-neural injection of a local anæsthetic solution, foot lameness could be established.

In certain types of light horse in which foot lameness had been present for some months, and in the absence of any gross and obvious cause, a tentative diagnosis of navicular disease was made. As to the percentage of cases in which that diagnosis was correct he knew of no statistics. A *post-mortem* examination of a horse's foot was the exception rather than the rule.

It was for this reason that we owed a great debt to Major Pryer, Mr. V. B. Jones, and those others who had done pioneer work with a view to ascertaining the value of radiography for the positive diagnosis of the disease.

Their task was by no means a simple one; the secluded position of the bone presented a number of technical difficulties. Superimposed upon it were two other bones, the second and third phalanges, the latter of which comprised very compact tissue which tended to scatter even the hardest of X-rays. One would suggest, in this connection, that they might find the Potter-Bucker diaphragm a help. It seemed certain that they could now accurately show the outline of the navicular bone on a radiograph.

It was Pryer who first drew attention to the deformity which sometimes occurred at the wings of the bone, and he applied the name "spurs."

As was the case in other forms of rarefying ostitis in the horse, there was a tendency in navicular disease for osteophytes to be thrown out at the periphery.

In what proportion of cases was deformity present, and in how many of them was it sufficiently gross to show up in a radiograph? Professor Macqueen had said that he considered the condition rare. He (Professor Wright) wished to present to the meeting a series of diseased navicular bones which had been presented to the College by the late Captain Russell, of Grantham. There were 20, 18 of which were Captain Russell's cases, and two his own. In 19 there was bony deformity, abnormality being most commonly associated with the posterior border. In eleven, there were one or two of the so-called spurs. In twelve the deformity was sufficiently gross that it should be readily detected by radiography. In the others the deformity was small and it would necessitate accurate technique and skill in reading the radiograph, to demonstrate its presence.

In three of the bones there was no obvious carious lesion on the inferior aspect, yet there was definite bony deformity on the postero-superior aspect. This was significant. He (Professor Wright) thought that in many cases it was

in the demonstration of an abnormal outline that the value of radiography lay.

The other point upon which he proposed to speak was that of the suddenness of onset of lameness. There were undoubtedly cases in which the onset was sudden and acute. He proposed to demonstrate specimens from two cases which illustrated this point. The first, for the details of which he was indebted to Mr. T. Wilson, M.R.C.V.S., of Nantwich, was from a hunter gelding. The animal was the property of Mr. Wilson himself, and the onset of lameness occurred suddenly when the horse was being ridden along a grass verge to a meet. The animal stopped "dead" in acute pain. Lameness was so severe that a fracture of a phalanx was suspected, and an ambulance was necessary to take it home. The animal was eventually destroyed and *post-mortem* examination of the foot showed the presence of navicular disease. Erosion was not marked, although there was distinct deformity of the supero-posterior border. This case was, he understood, demonstrated at a meeting of one of the Divisions of the "National," and a diagnosis of navicular disease discounted, because the foot was a good, wide one, and the symptoms did not conform with the accepted views.

Proceeding, Professor Wright said that he was inclined to the view that the condition was probably toxic in origin, and that if an adequate *post-mortem* examination was made lesions would probably be found in other parts of the body.

It was significant that in the case under review there was, in addition, ossification of the lateral cartilages, and also an ostitis of the tendinous aspect of the pedal bone.

The second specimen was a fresh one: it was the foot of an animal destroyed the previous evening—a light vanner, age estimated at about 18 years, gelding. The animal was first presented at the Out-patients' Department of the College at the end of last August, the history being that it had been in the owner's possession for two years and that it had worked satisfactorily on the streets of London until the day before presentation. On being taken out in the morning it was found to be acutely lame in the off-fore limb. Palpation revealed nothing abnormal; the foot was a particularly good one. The plantar nerves were blocked and foot lameness diagnosed. Palliative treatment was applied for three weeks without result, and the owner was then advised to take the animal to the Cricklewood Home for a rest at grass.

Nothing more was heard of the case until the afternoon preceding that meeting, the horse having been at rest for 18 weeks. The lameness was unchanged. The plantars were again blocked and the previous diagnosis of foot lameness verified. A tentative diagnosis of navicular disease was made, purely on negative evidence, and destruction advised. It was sent to Messrs. Harrison and Barber, who kindly returned the foot to him that morning. The case was one of extensive navicular disease. It would be seen that there was erosion of the inferior surface to which the tendon of the deep flexor was adherent; in addition, there were spurs.

In conclusion, Professor Wright demonstrated some radiographs (these were taken by Mr. H. J. Ede). The first was of the foot of Mr. Wilson's case with the bones *in situ* (it must, said the speaker, be understood that this was a radiograph of a *post-mortem* specimen). It definitely showed the bony deformity associated with the supero-posterior border.

It had been suggested that one might, with advantage, inject some radiopaque substance on to the surface of the bone, it being suggested that this would tend to collect in the erosions and make their demonstration more simple. The radiographs exhibited would indicate that it was no simple matter to pass the point of the needle to the appropriate place on the under aspect of the bone. Again, the tendon being adherent and the erosion itself being filled with granulation tissue, it was improbable that much success would attend this method.

Mr. R. C. Irving said that he had had a good deal of experience in navicular disease and one opinion at which he had, in consequence, definitely arrived was that horses did not develop navicular disease unless they had been subjected to severe road work. The disease was due to the pressure exerted on the coffin bone, when ulceration was caused. The foot prone to navicular disease, was the wide, flat-shaped foot so greatly admired by Professor Macqueen's countrymen; he thought that was the worst type of foot a horse could possibly have. He had found that all the horses with flat feet went lame and he put that down to navicular disease. In his experience, a horse with deep, narrow feet, shaped like those of a mule, if that shape was natural, never developed navicular disease because the coffin bone did not come down too near the solar surface of the foot and so escaped concussion. He had bought a good many horses in France and the French veterinary surgeons said that navicular disease did not exist in horses with sidebone, as that prevented descent of the coffin bone. In this connection it was a significant fact that the French did not regard sidebones as an unsoundness. The winning heavy stallion at the Paris show had sidebones. We were the only country in Europe that considered sidebone to be an unsoundness: he had bought horses in central Russia and they did not regard sidebones as an unsoundness there.

Concerning diagnosis, the first symptom he had found in navicular disease was deepening of the heel, with slight contraction. That went on for a short time; then the foot began to contract in the centre, between the coronet and the shoe, and developed a sort of waist to it. That was very obvious in a flat foot and they would be astonished how thin the sole was in one of those flat-footed horses. He thought that, in diagnosis, they wanted very largely to go into the previous history and the work the horse had been doing. Navicular disease had practically disappeared amongst the thoroughbred horses, and the reason was that nowadays they were not used in road work, whereas ten or 15 years ago they used to be exercised on the hard roads. Even in hunters now the disease was disappearing because they were not hacked to and from the meets as they used to be. In his view, in a few years we should not see navicular disease at all.

Concluding, Mr. Irving said that he had omitted to mention pointing, to which reference had been made, in the matter of diagnosis. A great many horses pointed from habit, through being tied up when young in a too narrow, sloping stall throughout the winter. He thought, therefore, that pointing was not a reliable sign of navicular disease.

Professor G. H. Wooldridge observed that he had been most interested in the discussion that they had heard, and particularly in Major Pryer's opening remarks in regard to it. He was rather inclined to agree with Professor Macqueen that the greatest difficulty they had was the diagnosis

of the early stages of navicular disease, and he was not at present satisfied that X-ray assisted them very much in that direction. On the other hand, there were plenty of instances of navicular disease where there was great difficulty in making a positive diagnosis, and it was in these instances that the work that Major Pryer and Major Oxspring had done would afford them great help, and they owed them a great debt of gratitude for the pioneer work that had been carried out in that direction.

He was under the impression, from Major Pryer's former contribution, that he was of opinion that the so-called spurs were present in the vast majority of cases, and in spite of that series of specimens shown by Professor Wright, as supplied by Captain Russell, he (Professor Wooldridge) was still of the opinion that they were by no means present in the majority. What he had in mind was the greater frequency of the presence of these osteophytes round the margin of the navicular bone, and particularly round the upper border, as pointed out by Professor Wright. The specimen sent round on behalf of Mr. Tailby showed evidence of these on the posterior upper margin, but none at the extremities of the navicular bone. He should like to know to what extent these osteophytes occurred in the absence of navicular disease, or were they only present in cases of classical navicular disease? He was rather under the impression that they would be found in a number of instances in which no evidence of rarefaction and caries of the bone occurred.

One way in which he thought some assistance could be obtained in the diagnosis of navicular disease in the earlier stages had been referred to in part, and that was the difference in action seen when going down hill, but especially upon removal of the shoe; he thought removal of the shoe was an important point.

Reference had been made, too, by Major Pryer, to high ringbone and the rarity of its occurrence, at any rate in Army horses. Many of them would remember how common it used to be in the cab horses in London: so common that it was spoken of as "cab horse disease." He thought it was generally due to the camber of the road; the condition occurred mainly in the near fore and more rarely in the off fore, as the near fore always got the brunt of the concussion.

Mr. Irving's contribution was a very telling one, because his observations showed that there was a great association between the hard surface of the road and concussion. That combination of circumstances would account for the rarity of high ringbone in Major Pryer's Army horses, and also to a great extent for the occurrence of caries of the navicular bone.

He was not satisfied that there was any association with toxic origin, and that led him back to Harvey's theory that bone disease might be due to latent infection through the navel. That was a very intriguing theory, but in spite of that he did not regard navicular disease as being in any respect of toxic origin.

Mr. Walter Perryman expressed his appreciation of the very interesting and attractive addresses they had had from Major Pryer and Professor Macqueen: they would not disagree with much that these gentlemen had had to say, as they were both authorities on the subject.

He thought that Major Pryer had quoted Dollar in reference to the commencement of some cases of navicular disease with acute lameness. In London they met with cases of lameness in all phases of foot trouble, and while he did not see a great many cases of navicular disease, he thought the condition was marked by the existence of other conditions as well. He did, however, occasionally see obscure cases. To illustrate that, he would say that he thought they often got acute lameness which led to navicular disease. He remembered one case that occurred some twelve months ago. He was called to see this animal, which was acutely lame, so much so that he said they must have the farrier up, as there was pus in the foot. The farrier was fetched, but nothing came of it. He searched the foot again the next day and diagnosed fracture of the coronary bone. He had the horse killed and, greatly to his astonishment and annoyance, they could not find a fracture and the only trouble he could discover was round the navicular bone. (Bone exhibited.)

He believed that some direct concussion was probably the cause of the initial stage in many of those cases, which eventually became chronic and then navicular disease was the result.

He had always looked upon those spurs, of which Major Pryer had spoken, as being due to calcification of the ligaments round the joint, and that they were not always present in true navicular disease. One had a rarefying ostitis there, whereas the spurs were calcified ligamentous structures. There was no doubt in his mind that they got navicular disease when they least expected it.

Major Glyn Lloyd said that he would like to compliment Major Pryer on a most able presentation of his case; he thought the essayist had very well described to them the symptoms of navicular disease and the method of its diagnosis.

In his view, Professor Macqueen was a little bit unfair in his criticism that Major Pryer had contributed nothing new towards the diagnosis of navicular disease in its incipient stage, because he considered that a very difficult thing to do. Major Pryer had described very well the classical premonitory symptoms and said that in the later stages there would be a marked difference in the feet. He thought, however, he might have mentioned also the throbbing of the plantar arteries, as was observed by Sir Frederick Smith as far back as 1886; nevertheless, that symptom was somewhat difficult to appreciate and was not constant.

There was just one condition which might be confused with navicular disease, and that was a keratoma. He mentioned that because he had, at Weedon, treated a horse belonging to the late Brigadier Malise Graham, a horse called Red Seal, which was a great cause of anxiety to the speaker because he could not diagnose the lameness from which it was suffering. He tentatively diagnosed navicular disease because it showed all the classical symptoms; on *post-mortem*, however, a very marked keratoma was revealed which had pressed on the anterior surface of the pedal bone. The bone plainly showed the resultant indentation caused by the keratoma. There was no sign of disease of the navicular bone, and he thought that the condition of keratoma might have been included by the essayist in the list of other lamenesses in the foot that might be confused with navicular disease.

He should like to stress the point, brought out by Major Pryer, that they did not get a large amount of high or low ringbone amongst Army horses, while it was common amongst cab horses, as mentioned by Professor Wooldridge and which he attributed to the uneven camber of the roads. Sir Frederick Smith, when he came to Aldershot to lecture on navicular disease, made this remark to him: "Wherever you see a large exostosis on either the os corona or the os suffraginis, you

can be almost certain that it has been the result of a fracture; either a star fracture, a fracture inside the joint or a chipping of the edge of the rim of the bone circumscribing the joint." In all cases of high or low ringbone he had examined on *post-mortem*, he had always been able to find evidence of a slight fracture on the articular surface of the bone itself or round the edge of the bone.

Lieut.-Colonel H. Greenfield said that he would like to add his meed of praise to Major Pryer for the very splendid address he had given them and the very admirable work he had done.

One or two speakers had referred to the incipient and early stages of navicular disease and the difficulty experienced in their diagnosis. He would like to suggest that one of the means by which they could tell it was by the rolling gait and occasionally alternate lameness in the fore feet.

His real objective in rising, however, was to submit that Major Pryer had given them a most wonderful record of the diagnosis of navicular disease in lameness, particularly by radiography —a diagnosis, moreover, confirmed by *post-mortem* examination, but he wanted to ask him if he had not had experience of the reverse. His own impression was that at a number of *post-mortem* examinations on horses he had found distinct rarefaction of the navicular bone and occasionally affection of the cartilage in cases in which the horse had never been lame: he thought he was right in saying that that had been the experience of Major Pryer and other officers of the R.A.V.C. He thought that was a very important matter for scientific research if it did exist, because if a horse could have rarefaction of the navicular and possibly cartilage affection and not be lame, lameness in such an affected horse might be due to other causes and explain the many atypical cases referred to, especially those of sudden origin.

In respect to differential diagnosis, no mention had been made of the jumping sprain of the flexor metacarpus tendon—a little-recognised cause of lameness which simulated that of navicular disease. He had oft-times heard the authentic story of a well-known veterinary surgeon who bought hunters clinically diagnosed as suffering from navicular disease and treated them successfully for this sprain.

He himself had saved several valuable horses and ponies from destruction for navicular disease by the same differential diagnosis and a suitable treatment.

Mr. J. W. McIntosh observed that he should like to say how very pleased he was to be there that night and to hear those very interesting contributions on navicular disease, by such well-known authorities as Major Pryer and Professor Macqueen.

He did not think that there was anything which he could usefully contribute to the discussion; indeed, to those who had any experience of horses the classical symptoms were well known, but there were occasions when the onset of the disease did not present the generally recognised signs, and it was here that special skill and care were called for. If it were only possible to detect its onset at the earliest possible moment, he believed something could be done to stay its progress. When once the disease had become established no form of treatment was of any use. It was a slow, progressive complaint and would eventually render the animal useless, at any rate for street purposes. In his own somewhat long experience in the care and supervision of a commercial stud, at one time owning a very large number of animals of the roadster type, navicular disease was one of the most serious things with which they had to contend, owing to the hard surface of the roads and the pace with which the work had to be carried out.

He quite agreed with Professor Macqueen when he said that recognition of the disease in its incipient stage was of primary importance. He would like to know from Major Pryer if he thought that it was possible to make a diagnosis with some certainty at this stage and, if so, how. His own view was that a positive diagnosis was not possible, and although one might reasonably suspect its existence, that was not accuracy.

Nothing had been said with regard to conformation. Associated with certain symptoms, he thought it might strengthen one's diagnosis—where one got upright shoulders, and short, straight pasterns. His friend Mr. Irving had, he thought, said something to the discredit of Scotch horses. He must have bought the wrong kind. He was a great believer in the "Clydesdale"—there was no more adaptable breed for general purposes, when well selected. If one bought horses with shallow feet and weak heels, then one must expect trouble, whatever the breed. His firm had at one time over 2,000 Clydesdales on the streets of London and navicular disease was practically unknown in them—at any rate, that was his experience after 30 years.

His only experience of radiography was confined to a hunter belonging to one of his directors. This was some years ago, but many of them would doubtless remember the case. It was sent to him with the history of intermittent lameness of some long duration. After keeping the animal under close observation for some few weeks he was unable to trace any of the classical symptoms, although he strongly suspected navicular disease. The feet were well shaped and symmetrical; there was no pointing or resting, no puffiness in the hollow of the heel: indeed, beyond slight lameness of a very intermittent character, he would go sound for days and even after a fairly severe gallop he would pull out sound as often as otherwise.

It so happened at that time that he (Mr. McIntosh) was giving a demonstration on lameness before the Central Division of the "National" and amongst others he showed this particular animal, giving them a brief history of the case and asking for a diagnosis. He had about 40 or 50 different opinions. Through the kindness of General Sir Layton Blenkinsop he had the horse sent to Woolwich, where he was X-rayed and, although the photographs appeared to be excellent, nothing of a helpful nature was shown. This animal was eventually destroyed and *post-mortem* revealed ulceration of both navicular bones.

The change of action, of course, was undoubtedly one of the first symptoms, but he himself never placed any reliance upon change of temperature; in fact, it was, he thought, often misleading. Unfortunately, many cases of navicular disease had other foot conditions in association, and as his duty was to maintain that stud at a high standard of efficiency he did not trouble about a differential diagnosis. So long as he was satisfied that the disease was in the foot and that a cure was unlikely, he had the animal "cast" and gave somebody else the opportunity of putting it right.

Major G. E. Oxspring said that his views coincided almost entirely with those of Major Pryer on the question of the diagnosis of navicular disease, as they had worked together a good deal on the radiological aspect of the subject.

From the experience gained amongst a large number of cases, which had come to him for X-ray examination, he was of the opinion that very few of us possessed the powers of observation which enabled us to recognise clinically in navicular disease the train of symptoms enumerated by Professor Macqueen, and so differentiate it with certainty from other foot conditions. With X-ray diagnosis we had a valuable means of forming a definite and immediate opinion in most cases, and so avoiding a prolonged period of observation and doubt.

With regard to X-ray diagnosis in the incipient stage of the disease, he would remind them that the diagnosis of most diseases was more difficult in the early than the advanced stages, and this also applied to the radiological diagnosis of navicular disease. That was what we must expect, but he did think we were making headway in this respect, and it must be remembered that the matter was still in the experimental stage. He, personally, thought that they could now diagnose navicular disease in some cases in the incipient stage; it was to some extent a question of technique and experience in interpretation. For instance, the early stage of the disease often manifested itself in a slight roughening of the cartilaginous surface, due to the appearance of osteophytes which, in a good film, carefully examined, showed up as minute bright spots, but these were by no means easily recognised.

With regard to bony spurs, he had come to the conclusion that they were not present in a very high percentages of cases, but if they did exist he thought it was one indication of the presence of inflammation in the navicular bone, from which we were justified in diagnosing navicular disease. The presence of spurs was usually associated with rarefaction of the navicular bone in another place.

Mr. J. Willett congratulated the essayist on his paper, and also on the opportunity he had had for observation. He (the speaker) saw a few hunters during the course of a year, some sound and some lame, and he must say that it had not always been so easy as some of the previous speakers had said for him to diagnose navicular disease.

There was one predisposing cause, which he thought was very potent, and that was bad shoeing. Many of the hunters he saw had the wall of the hoof a quarter to half-an-inch higher on the outside than it was on the inside; consequently, the fleshy laminæ became twisted between the horny laminæ, and if that was continued for long the horse came out of the stable very "paddly" in the morning, and one was confused as to whether it had navicular disease or not. In the heavy-weight hunter one found that the stud grooms would have the shoes kept well under the feet, to prevent the risk of casting the shoe. In that case, instead of the hoof expanding, there was a tendency for it to contract and the foot surface was sometimes narrower than at the coronet. When that had been corrected by rest the animal often became sound. This was one of the few conditions that might be confused with navicular disease.

Major R. G. Stalker, when called upon by the President, said that he thought that everything that should be said about navicular disease had already been dealt with. He would, however, like to ask Major Pryer if he could give them any explanation why they did not get navicular in the hind limb. They found that in draught and gun horses it was the fore foot that got worn out on the road.

The Reply

Major Pryer, replying to the points raised in the discussion, first thanked his hearers for the very kind way in which they had received his paper. As a joint opener of the discussion he really did not expect to be called upon to reply and, indeed, they would all be there till the next morning if he were to attempt to answer all the questions that had been put to him: he would therefore try to take the general sense of the matter.

It was inevitable that there should be only very slight divergence between the symptoms he mentioned and those mentioned by Professor Macqueen, for the very obvious reason that he was Professor Macqueen's pupil, and the first thing he learnt about navicular disease he learnt from him. He should like to say how wonderfully the description of symptoms then given him had stood him in good stead for a number of years. (Applause.)

He suggested that perhaps they were somewhat exceptionally placed in the Army in that they got their cases before the stud groom or coachman, as the case might be, had made up his mind that the horse was lame and that the services of the veterinary surgeon were required, and, possibly, in those early stages, they saw many variations in the clinical symptoms.

Professor Macqueen had said that pedal ostitis was reasonably easy to distinguish from navicular disease. He was sorry, but he was still not convinced; neither was he clear how one found osteophytes on the solar surface apart from the use of X-rays.

In regard to hoof section, his small experience was different from Professor Macqueen's large one, and concerning the improvement which occurred after the operation and with a run on grass one naturally asked, would the case not have done as well with a run on grass alone?

He should say, from a short glance at the specimens Professor Macqueen had passed round, that two would have shown up under the X-rays but that the other would not have done so.

With regard to that question of spurs, there had been a most peculiar misapprehesion and one which he should have rectified. A short time after he gave his first paper on that subject, Professor McCunn made reference to the spurs which he (Major Pryer) said were diagnostic of the disease, and he saw that a misapprehension had arisen; consequently, he wrote a disclaimer, but a clerk mislaid it and it never got to the Editorial Committee of *The Veterinary Record*. In the specimens left by Sir Frederick Smith, 20 per cent. of the cases of disease showed spurs. He did not suggest for one moment that they were present in every case of navicular disease, but when they were present he thought they were diagnostic.

He had come there that night to try and get enlightenment on certain points, particularly the deviations from classical symptoms and the sudden onset of lameness, and he had been very glad to hear so many people quote other examples of suddenly occurring navicular disease, such as Professor Wright had quoted.

Dealing further with Professor Wright's observations, he might say that he had tried with two types of Potter-Bucker diaphragm two years ago, but he did not find them successful.

He had heard, with great appreciation, the remarks of Mr. Irving. As to the French view that one never got navicular disease with sidebone, he was sure it was incorrect and he had X-ray films and *post-mortem* specimens to prove

it. He entirely agreed with Mr. Irving in regard to the proneness of flat-footed horses to navicular disease and the fact that horses with good deep heels escaped it. That was a fact that was brought to his notice a few years ago by his late Director-General, Major-General Anthony, and since that time he had been very grateful for the hint.

Mr. Irving said that he had never heard of navicular disease except in hard use on roads. He (the speaker), however, had seen it in the Mesopotamian desert in horses that had never been off sand for 18 months at a time.

In reply to Professor Wooldridge's enquiry as to whether or not osteophytes were only present in navicular disease, that was his experience.

Mr. Perryman had spoken about calcification of the ligament: that was a most intriguing point, but he doubted its constant association with navicular disease.

He agreed with Colonel Greenfield that navicular cases were not always lame. Sir Frederick Smith quoted a number of such cases, even those which were quite advanced.

On the question of navicular lameness being contributed to by lesions somewhere else in the limb, he agreed that this certainly might be the case, and he supported Professor Mitchell's view that navicular disease as they knew it would subsequently be proved to be a manifestation of a generalised osteo-arthritis.

He was sure that the palliative treatment mentioned by Mr. McIntosh was good. As to conformation, in the aggregate he had come to the conclusion that the conformation of the animal had no connection with the disease.

He hoped that the case quoted by Mr. McIntosh would not prejudice him against the use of the X-rays, because he was sure that that picture was taken in the old days: under the present system the horse stood on the film, which was the only way in which one could see the extent of the disease.

Mr. Willett had spoken of bad shoeing. In the Army their method of shoeing was so standardised that he had never been able to incriminate the faulty shoeing theory in the production of navicular disease. (Mr. Willett: "I meant more in regard to diagnosis.")

Major Stalker mentioned the fact that navicular disease did not occur in the hind limb: he (the speaker) could only give him the explanation that was given by Smith, that the animal frequently rested the hind limbs, thereby relieving the continuous pressure on the navicular bone, whereas he did not frequently rest the fore limb and the pressure was continuous. That seemed a fairly satisfactory explanation. That reminded him of a point which had not been raised that evening, and that was the number of navicular cases which did not lie down. He had records of a sufficient number of cases to indicate that cases of navicular disease did not take their rest as most other horses did.

He apologised if he had omitted to answer any of the points raised in the discussion.

A GOOD WORD FOR THE STARLING

Commenting on the ravages of a plague of caterpillars invading the pastoral and agricultural areas of Tasmania, *The Sydney Herald* says: "In the starling the farmers have one friend that is doing its utmost to keep the caterpillars in check. Hitherto regarded as a pest because of their penchant for cherries and other small fruits, these birds have done more than anything else towards checking the pest."

Clinical Reports

TRAUMATIC NEPHRITIS IN THE COW*

J. D. McLAUCHLAN, M.R.C.V.S., D.V.S.M.
Brechin, Angus

Subject.—Ayrshire cow.

History.—The cow had calved a fortnight. For a period of about a fortnight after the previous calving the cow was passing blood clots in the urine, but the symptom cleared up and she appeared normal until next calving, when there was a recurrence of the symptom.

Symptoms.—The cow showed symptoms of colic, kicking at her belly, and she was in a very emaciated condition. Rectal examination revealed the uterus to be apparently normal; manipulation of the bladder caused a certain amount of pain. There was excessive straining during micturition.

Diagnosis.—Cystitis.

Treatment.—Bladder sedatives and antiseptics were administered, but the prognosis was rather doubtful.

The cow died within two days.

Post-mortem.—On removing the viscera, a large cystic condition was noticed around the right kidney. On cutting into the mass there was a grating sound the cause of which turned out to be the presence of a brass pin one-and-a-half inches long.

The bladder showed numerous small papilliform growths.

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HYPOCALCÆMIA IN THE SOW*

J. D. McLAUCHLAN, M.R.C.V.S., D.V.S.M.
Brechin, Angus

Subject.—Cross-bred sow in pig and two days past her time.

History.—The owner sought advice as he thought the pig was dying and wondered if the litter could be taken away. The previous evening the sow was trembling and unsteady on her hind legs, and she appeared to be constipated.

Symptoms.—The sow was in a comatose condition.

Diagnosis.—Symptoms resembled those of milk fever in the cow.

Treatment.—One hundred and fifty c.c. of Calcium Sandoz 10 per cent. were injected subcutaneously behind the ear at about 9 a.m. On making a passing call, about 4 p.m., I found that the sow had been on her feet and had regained consciousness. She was now still recumbent, however, and unwilling to rise. Another 150 c.c.

(*Concluded at foot of Col.* 1, *Page* 264.)

*Cases forwarded by Captain Geo. Howie, F.R.C.V.S., *Veterinary Record* Divisional Representative, North of Scotland V.M.A.

Abstracts

[The Eradication of Contagious Abortion: A Northumbrian Experiment. Stewart, W. Lyle, and Westwater, C. H. *Vet. Jour.*, *89*, 12, 536-544. 4 tables.]

In view of the prominent place still occupied in the realms of veterinary controversy by the immunological methods of combating contagious abortion in cattle, and of the acknowledged practical difficulties attendant upon the double herd system of control, importance attaches to reliable evidence that the eradication of the disease by agglutination testing and the isolation of reactors, pending their early removal from the herd, is a practical proposition.

This is an account of the achievement of successful results in one of two commercial herds (the other is to be the subject of a later report) by the measures adopted to eliminate contagious abortion. This self-contained dairy herd numbered about 60 animals, tubercle free, and at the commencement of the experiment there was a history that contagious abortion had been prevalent for 20 years, and that the breeding and general health of the animals since had been indifferent. (Such a relationship of factors is postulated and discussed early in the article.)

Following a preliminary blood test, which disclosed the presence of six reactors, with three doubtful reactors in addition, a detailed scheme was devised for eradication, which came into operation in October, 1930. The essentials of the scheme were: (1) All animals in the herd over the age of twelve months to be blood tested monthly until there were no reactors. (2) All reactors to be segregated immediately and sold at the earliest opportunity (no animal was sold to another herd without disclosing her true history). (3) All animals showing a doubtful reaction to the blood test also to be held in isolation pending knowledge of their true status. (4) All necessary herd replacements to be purchased subject to the agglutination test carried out on the vendor's premises. After delivery such cows to be placed in isolation for one month, retested, and admitted to the clean unit only if the second test proved negative. (5) The institution of "maternity" stalls or boxes for all calving or aborting cows. (6) The cleansing and disinfection of buildings. (7) The double fencing of cow pastures by means of a strand of barbed wire placed 4-ft. from the hedges.

The technique of the agglutination tests (carried out after the method of McFadyean and Stockman) is described, and the following table shows both the gradual nature of the eradication process and the value of monthly tests.

Blood Tests on the Herd and Progress of Eradication

Tests.	Date.	Number of animals tested.	Number of reactors.	Per cent-age.	Doubtful reactors.*	Total No. of reactors.
First	8.7.30	19	6	31	3	9
Second	28.10.30	30	5	17	1	6
Third	26.11.30	36	3	8	2	5
Fourth	21.1.31	36	4	11	4	8
Fifth	13.2.31	31	1	3	2	3
Sixth	19.3.31	32	2	6	0	2
Seventh	22.4.31	40	0	—	0	0
Eighth	24.6.31	38	0	—	0	0

*Showing doubtful agglutination in a serum-antigen dilution of 1: 40.—*Abstr.*

The last column of the table shows that the total number of reactors steadily declined, except at the fourth test, when there were eight reactors. "The fourth test followed an interval of two months, and had it been possible to have tested the herd in December, 1930, it is obvious that several or all of these reactors might have been detected and removed from the herd one month earlier. Latent reactions in the clean unit, while they are always to be expected, are troublesome and frequently difficult to explain, and since they cause a severe tax on the morale of the dairy staff at a critical time, must be guarded against by close supervision and by monthly tests."

Experience has shown the authors that doubtful reactions indicate a transient phase, and that while some animals may revert to a negative status, most of them proceed to become positive reactors.

All breeding animals in this herd have been blood tested bi-annually since it was freed from the infection in 1931. For a period of two-and-a-half years there has not been a single positive or doubtful reactor. "The owners' veterinary surgeon is exceedingly pleased with the general and breeding health of the herd, and states that since freed from *Br. abortus* infection there have been no cases of vaginitis, mastitis, retained placentæ or sterility."

As to the cost of eradication, a tabular statement concerning the finance of the process in this herd shows that the average loss in the replacement of reacting cows was £4 12s. 4d.—a figure which would have been reduced by more than £1 per head but for a proportionately great loss on an expensive pedigreed animal. "The owner states that the eradication of abortion can be likened to a permanent improvement

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10 per cent. calcium were injected as before. On calling in the morning, the sow was up and had produced a litter of 14.

The feature of interest was the dose of calcium required and leads me to wonder if the unsuccessful results sometimes met with in calcium therapy in the cow with milk fever are not due to too small a dose, *viz.*, 200 c.c. of a 10 per cent. solution.

involving a certain capital expenditure, but inasmuch as eradication has been accompanied by definite benefits, it cannot up to date be held to have been other than profitable. This also is our view." W. B.

* * * * *

[The Campaign against Epizoötic Abortion in Ontario. The Rôle of the Ontario Research Foundation. (Trans. title.) GWATKIN, R., and PANISSET, M. (1933.) *Bull. de l'Acad. Vét., 6,* 9, 399-407.]

The conditions influencing the prevention of contagious diseases in Canada and the U.S.A. differ considerably from those in Europe. For instance, the relative sparseness of the cattle population of the former countries and the low incidence of contagious diseases render possible, and comparatively easy, the successful application of eradication measures. A further advantage is the relatively low value of cattle in these countries during normal times.

In order to study the economic importance of epizoötic abortion, 22 herds containing 1,140 animals were kept under observation for 18 months. The first serological test showed 348 reactors (30·5 per cent.); 75 doubtful results (6·6 per cent.), and 717 negative results (62·9 per cent.). During the 18 months, 100 abortions occurred, 87 being in reactors and 13 in non-reactors. The percentage of premature still-born calves was 3·1 in the reactors and 0·1 in the non-reactors and 75 cows of the first group were sterile or showed functional disorders of the genital apparatus as compared with 28 (17·7 per cent.) in the second group.

The district of Schomberg was the first selected for the experimental eradication of Brucellosis. In the hands of the local veterinarian, Dr. MacLeod, injections of carbolised water and killed vaccines had both been without result; though, on the other hand, vaccination with living cultures had reduced the number of cows aborting, but unfortunately it was possible to incriminate vaccinated cows as the source of fresh outbreaks. As a result of these setsback Dr. MacLeod established the value of the elimination of infected animals by the agglutination test and consequently most of the breeders of the district were prepared to act according to the plans of the Ontario Research Foundation.

The district under experiment was isolated on one side by marshes and on the other by roads. The owners understood the necessity of avoiding all contact between their herds and non-tested animals and before any intervention each owner gave an undertaking in writing to send to slaughter all reacting animals; though to lessen the loss it was allowable to isolate cows until the end of lactation and when fattened they were sent to the abattoir. To avoid mistakes all reacting cows were marked in the ear.

The usual technique of testing sera in six dilutions from 1 in 25 to 1 in 1,000 was found most satisfactory, and all doubtful sera were checked by the complement-fixation test. Those animals giving a doubtful reaction were isolated until the test was repeated after the lapse of a month. After the removal of reacting animals careful disinfection was practised under the supervision of a veterinarian and cows were isolated in calving quarters for two weeks before and after calving. Cows to be purchased were examined at the vendor's or, failing that, kept in isolation at the purchaser's until the result of testing was known.

All animals were examined quarterly.

The following table shows the incidence of certain conditions in healthy and infected or suspected animals.

	1929-30. 1,140 animals.		1930-31. 622 animals.		1931-32. 1,500 animals.	
	Infected and Suspected	Healthy	Infected and Suspected	Healthy	Infected and Suspected	Healthy
	%	%	%	%	%	%
Abortions ...	15·7	1·2	11·1	0·67	22·4	1·5
Still-born and weakly calves	1·1	0·1	1·2	1·0	2·2	0·6
Retention of the placenta ...	5·2	0·4	8·1	0·22	13·0	1·6
Sterility, functional troubles	17·7	3·9	8·1	1·8	22·0	6·6

These statistics show the advantage of eliminating Brucellosis.

The work of the Ontario Research Foundation has emphasised the reliability of the agglutination test.

Experiments have shown that chemo-therapy and vaccino-therapy are without demonstrable results, and although premunition gives immediate results the method presents grave hygienic disadvantages.

Formaldehyde, mercurochrome, colloidal arsenic, thionin and pyronin were found to be without value for prophylactic or therapeutic purposes.

Immunisation of cavies with culture filtrates or killed cultures was attempted, but although certain animals received up to 30 inoculations the method appeared of no value. The search for a bacteriophage for *Brucella abortus* was also fruitless. By the injection of living cultures of *Br. abortus* into rabbits and cavies, a serum was obtained which would protect cavies from infection by the buccal or conjunctival routes. It was not found possible to produce such a serum from cows. Similar experiments with horses are proceeding. In reacting cows calving at full term the *Br. abortus* was only isolated in 15 per cent. of the fœtal membranes, though it was present in the udder in 55 per cent.

J. S.

[The Control of Contagious Abortion in Cattle caused by *Brucella abortus* Bang. (Trans. title.) Bang, Oluf. (1933.) ***Fourth Scandinavian Veterinary Congress,*** Helsingfors, Second Sitting, 22 pp., 5 tables. Summary in German.]

The ideal method of control in contagious abortion is the complete eradication of the disease from an infected herd. Animals belonging to a herd in which contagious abortion does not exist possess no immunity against the disease. Protective inoculation with live bacilli does not constitute a method which is calculated to exterminate the disease, but it aims at infecting the animals with abortion bacilli at a time when they are not pregnant. This mode of inoculation generally brings about a considerable decrease in the number of abortions, and so in small herds it often happens that abortions are caused to disappear more quickly. In large herds, systematic vaccination of heifers with cultures of sufficient virulence seems to prevent the recurrence of outbreaks of abortion, which otherwise appear periodically. In herds that are infected and in which abortion prevails one does not find that a larger proportion of cows harbour infection with the abortion bacillus in their udders when systematic inoculation with live cultures is practised than when vaccination is not undertaken. Besides, vaccination of heifers was not found to cause any decrease in milk production after subsequent calvings.

Investigations are in progress to ascertain how often the udders of heifers that have been vaccinated become infected with abortion bacilli in the subsequent lactation period. It has been shown conclusively, however, that infection of the udder depends materially upon the virulence of the culture used for inoculation. Cows that are harbouring udder infection, and, in general, animals that are infected and calve normally, are extraordinarily resistant towards further infection of the uterus and hence represent specially valuable animals in infected herds. But, on the other hand, some consideration must be given to the standpoint that raw milk ought not to be placed upon the market when it is derived from cows that suffer from infection of the udder with abortion bacilli. J. M. Buch (*J. Agric. Res.*, 1930, Vol. 41), in America, has reported upon the vaccination of animals during calfhood. The practical results forthcoming from this mode of vaccination must be awaited with great interest, for it is to be assumed that the percentage incidence of resulting udder infection is certain to be very small. As regards the modes of infection which may be said to have practical significance in bovine contagious abortion, mention must be made of the fact that in addition to infection *per os* we now also know that infection can pass through the skin. This mode of infection has been demonstrated by Cotton, of the U.S. Bureau of Animal Industry (1930 *Eleventh Internat. Vet. Congr., London*) and Bang and Bendixen (1932, *Mbl. danske Dyrlægef.*). J. T. E.

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[Worm Aneurysms in Horses : Their Prevalence, together with their Clinical and Forensic Significance. (Trans. title.) Dennler, E. (1931.) Inaug.-Diss. Leipzig. Abstr. in *Deuts. tierärztl. Wschr.* (1934.) *42*, 59.]

Out of 100 horses slaughtered and afterwards examined, 16 only were found to be quite free from worm aneurysms, and among the aneurysms discovered seven were observed to represent particularly severe morbid changes. The dilatation caused by the aneurysm was found in many cases to encompass the site of thrombus formation, but in several others the two lesions were found in juxtaposition. The thrombi presented great variations in their appearance and texture. In aged horses aneurysms were found that were quite as well developed as in young horses. No differences could be discerned as between horses working in towns and in country districts, or between well-bred and coarse-bred horses. The nutritional state of the body even in aged horses was not unfavourably influenced by the presence of the aneurysms. Difference in sex seemed to play no part in respect to the incidence of the aneurysms.

The clinical disease which is sometimes the outcome of aneurysm in the anterior mesenteric artery was associated with a great variety of manifestations and displayed no typical symptom. The severity of the disease exhibited no correspondence with the state of the aneurysm.

From statistics collected by Dennler it would appear that about 0·7 per cent. of horses suffering from colic succumb to intestinal embolism induced by worm aneurysms. In other words, when horses become attacked with symptoms of colic about one out of every 150 dies from intestinal embolism. Again, when fatal cases of colic are examined *post-mortem* it was found from the figures collected that 5·75 per cent. can be accounted for as caused by worm embolism. That is to say, out of every 17 fatal cases of colic one may be laid to the charge of embolism.

The measures suggested to diminish rationally the intensity of sclerostome infestation and, consequently, the incidence of worm aneurysms, comprise the administration, preventively and curatively, of the appropriate anthelminthic remedies. In attempted curative treatment of suspected cases of intestinal embolism the indications are for the use of drugs regulating heart action and the administration in large quantities of mucilaginous or oleaginous fluids, as well as symptomatic treatment; laxatives and purgatives ought to be avoided.

From the medico-legal standpoint, in delivering an opinion on a case, principal reliance will

be placed upon the relationship between the clinical disease and thrombosis, that is, to establish whether or not the fatal condition was attributable to intestinal embolism. Further, attention ought to be directed to the condition of the aneurysm in respect to the thrombus so that a judgment can be formed upon the nature and time of onset of the fatal excitation.

J. T. E.

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[Horse Parasite Control in Illinois. Slatter, E. E., and Graham, R. (1933.) *Vet. Bull. Washington, 27,* 1, 21-28.]

The results of an attempt in 1932 to suppress parasitic infestation of horses by systematic annual treatment during December and January on Illinois farms are recorded by Slatter and Graham. Over 200 veterinarians treated more than 136,235 horses, representing over 75 per cent. of the horse population, in 66 different Illinois counties. The cost averaged 0·40 cents per head.

R. T. L.

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[Carbon Tetrachloride in the Treatment for Internal Parasites of the Horse. Thompson, A. T. (1933.) *Vet. Bull. Washington, 27,* 3, 261-263.]

Thompson gives the routine followed at the Remount Depôt at Fort Royal, Va., in the treatment of horses for strongyles and ascarids. All bedding is removed and the animals are fasted for at least 18 hours but water is allowed. Food and water are withheld for two hours after treatment and the animals are then turned out to pasture. Fifty c.c. of carbon tetrachloride and 8 ozs. of Glauber's salt is considered a sufficient dose for the average riding type of horse. Both are administered by a stomach tube. The dose of Glauber's salt is dissolved in 800 c.c. of water. This treatment necessitates only one handling of the animal.

R. T. L.

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[The Ringworm Fungi of Horses and Cattle. (Trans. title.) Lebasque. (1933.) *Bull. de l'Acad. Vét., 6,* 9, 394-397.]

M. Vivien presents an account of the above paper to the Veterinary Academy and it is his resumé that is published.

The material examined by the writer was obtained not only in France but also in North and Equatorial Africa, Madagascar, Syria and Indo-China. In the horse, small spore infections predominate, but in cattle the lesions are due to large spore Trichophyta, with the following percentages: *T. ochraceum* 53 per cent., *T. discoides* 35 per cent., and *T. album* 12 per cent.

Four new species from abroad have been found by the author and recultivated from inoculated animals. They are *Sabouraudites lanutus* and *Trichophyton bullosum* in the horse and *T. villosum* and *T. papillosum* in cattle.

Lebasque considers that the distinction between downy and glabrous large spore Trichophyta should not exist and that the differences are due to the action of the media.

J. S.

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[A Case of Squamous-celled Carcinoma affecting the Nasal and Oral Cavities of a Horse. Clarenburg, A., and van Heelsbergen, T. *Tierärztliche Rundschau.* (1933.) *39,* 18.]

The subject was a horse sent to the slaughterhouse to be prepared for human consumption. A purulent discharge was observed coming from the nostrils and the orifice of a fistula was found on the face below the left eye. The adjacent bone was swollen and soft.

A *post-mortem* examination revealed the fact that the animal had died of a fibro-purulent pneumonia. Reddish-blue areas, about the size of a walnut, with distinct yellow centres, were distributed throughout the lung and the lymphatic glands were swollen and œdematous.

In the nasal and maxillary regions a greyish-white tumour, 15 by 8 cms., was found, which had caused considerable destruction of the adjacent tissues by its growth. Although no evidence of metastasis could be detected either by macroscopic or microscopic examination, it was thought that the pneumonia had been caused by the animal inhaling portions of necrotic tissue cast off from the region of the tumour growth.

N. S. B.

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[The Variability and Ultrafiltrability of the Virus of Infectious Anæmia of Horses. (Trans. title.) Kral. (1933.) *Recueil de Méd. Vét. de l'Ecole d'Alfort, 109,* 12, pp. 912-919.]

The author first describes the variability in virulence of the virus of infectious anæmia of horses encountered by him during three years' study. Sometimes the blood of a diseased horse was found extremely virulent, while later its infectivity was absent. Usually, however, there was found merely a range of infectivity from high to low, without the blood becoming avirulent, as judged by the period of incubation and extent of the reaction in a normal horse following subcutaneous injection of 20 c.c. of the blood under test.

The author next describes the various types of filters, and then the special apparatus for the ultrafiltration of serum, urine, etc., employed in his experiments (apparatus illustrated).

From these described experiments, he concludes: (1) That the incubation period of this disease varies not only according to the variability in the virulence of the virus, but also according to the nature of the liquid employed: whole blood, serum or filtrate; the more rich the liquid is in albumen, the shorter is the incubation period.

(2) That controlled experiments, using ultra-

filtrates of infective blood, proved that the virus of infectious anæmia is not ultrafiltrable: it is supposed that the virus is adsorbed by the albumen of the blood cells or serum, the latter (and therefore the virus with it) being held back by ultrafiltration. The serum is thus rendered sterile.

(3) That urine of horses attacked by this disease is not infective unless it contains albumen.

[Note.—The author appears to be talking about virus alone, although he actually presumes an adsorbed virus, when dealing with ultrafiltration.] C. V. W.

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[A Note on the Mineral Composition of the Blood Serum of the Horse and the Pig. Robinson, W. G. (1933-34.) 3rd Rept. Director Inst. Anim. Path. Univ. Camb., 156.]

An estimation of the more important mineral constituents of the blood sera obtained from a series of normal horses and pigs.

R. E. G.

SHEEP-BREEDING SOCIETIES AND FOOT-AND-MOUTH DISEASE RESTRICTIONS

A reply has been received by the Ryeland Flock Book Society from the Minister of Agriculture to the society's letter, which was supported by other pedigree sheep societies, on the subject of the removal of pedigree rams from areas in which foot-and-mouth disease exists, urging that removal should be permitted on licence after inspection by a Government veterinary officer, so as to enable them to take part in livestock shows and sales.

In his reply the Minister states: "So far as movement within the area is concerned, if it can be shown to the local authority that the movement is either necessary or expedient, there would normally be no difficulty in obtaining a licence as provided in the Order for movements which are outside a radius of two miles from an infected place. I gather, however, that the difficulty to which the letter refers is the prohibition of the movement of animals out of an infected area. Such a prohibition is really the most important part of the restrictions on the movement or marketing of animals in infected areas, and any exception in particular cases from such an important safeguard against the spread of infection from infected to non-infected areas would defeat the purpose of the restrictions.

"Another important aspect of the question is that foot-and-mouth disease is spread not only by direct contact between affected and non-affected stock, but also through the conveyance of infection by indirect means. It is almost impossible to ascertain with certainty whether or not there has been a risk of infection in this manner, and it is most unlikely that local authorities would view with favour any procedure which enabled animals to be moved from foot-and-mouth disease infected areas to their districts. In the circumstances, while much regretting the inconvenience which the restrictions undoubtedly cause to livestock breeders and traders in infected areas, the Ministry could not agree to modify the existing procedure in the manner desired."

Report

FURUNCULOSIS COMMITTEE*

In July, 1929, the Secretary of State for Scotland and the Minister of Agriculture and Fisheries appointed a Committee, of which Professor T. J. Mackie is the Chairman, "to investigate the origin, predisposing causes and mode of dissemination of furunculosis and similar infectious diseases among salmon, trout and other fresh-water fish in England and Scotland and to conduct experiments with a view to ascertaining methods of combating the disease, and to report the results of their proceedings." An interim report was issued in December, 1929, and a second interim report in July, 1933.

Furunculosis of fresh-water fish is of great economic importance. Apart from the direct commercial loss occasioned by deaths of fish which would otherwise be suitable for food, the disease is commonly found above all nets in a river and, except for a slight proportion removed by rod and line, all these fish would in the ordinary course of nature form part of the breeding stock for future years. It is widely spread in England and Scotland and maps are given in this report indicating the infected areas.

Salmon, sea-trout and brown trout are liable to infection, the typical sign of which is the presence of open boils or ulcers in the muscles. In many cases no outward sign of the disease is visible, but soft areas in the muscles are discernible by gentle pressure. Blood discharges from the eyes, fins or anus are also noticeable.

Since the first interim report was published, many further outbreaks of the disease have been studied and the investigations have confirmed the previously established fact that *Bacillus salmonicida* is the primary and specific cause of the disease.

Salmon and sea-trout entering fresh water from the sea are apparently highly susceptible, and the view one time held that the disease was introduced by such fish is now no longer believed to be true. These migratory *Salmonidæ* are infected in the fresh water after having left the sea, and the origin of infection appears to be diseased or apparently healthy native trout acting as carriers of the specific organism. Such carriers may maintain the infection for long periods, especially over the winter season, when the temperature of the water is low. A water temperature of 55° to 66°F. is apparently necessary for the spread and development of the disease, unless the fish are in a poor state of health, as they may be after spawning, when the disease will spread at a lower temperature. Age and species are also important factors.

*Second Interim Report of the Furunculosis Committee. (H.M. Stationery Office. 1933. 2s. 6d.)

yearling and younger trout being more resistant than older fish. The density of the population of a fish colony is another factor of importance, for overcrowding of salmon in a limited part of a river is well recognised in promoting an increase in the incidence of infection, whilst a high-water level tends to check an epizoötic.

Recently isolated strains of *B. salmonicida* are highly virulent for trout under experimental conditions, and all strains examined appear to be serologically identical as judged by the complement-fixation test.

In testing for carriers, it has been found that *B. salmonicida* is, if present at all, located in the kidney and apparently is excreted from there into the surrounding water, thus being a menace to healthy fish.

A method of disinfecting ova by the use of acriflavine is described and the Committee make recommendations for preventing the spread of furunculosis, based on their knowledge of the disease. They also recommend the continuance of the present research facilities.

R. L.

Diseases of Fish Bill

Compulsory Notification

The Diseases of Fish Bill, which is now under consideration by the House of Lords and which was introduced by Earl de la Warr, Parliamentary Secretary to the Ministry of Agriculture and Fisheries, is based on recommendations by the Committee appointed in 1929 to inquire into furunculosis and similar infectious diseases among salmon, trout, and other fresh water fish. Proposals similar to those in the Bill were put forward by the Committee in a first interim report issued in December, 1929. In the second interim report (reviewed above) the Committee urged the necessity for prompt action, and added that there was reason to hope that a Bill on these lines might be regarded as a practically non-contentious measure.

The Bill, which does not apply to Northern Ireland, seeks to prohibit the importation of live fish of the salmon family, and to control by a system of licensing the importation of live coarse fish or live eggs, whether of salmon or of coarse fish. An exception permits the importation of eels for human consumption.

If the Minister of Agriculture is satisfied that any waters are infected he may make an order declaring the area an infected area, and may prohibit or regulate the transport of live fish, eggs of fish, or foodstuffs for fish into or from or inside the area. The Minister is also given certain powers to order or undertake remedial measures in infected areas. The Bill entrusts fishery boards with powers and duties designed to effect the same end.

The duty of notifying the Minister or the local fishery board of outbreaks of disease is laid upon "any person entitled to take fish from any waters, or any servant or agent employed for the purpose of having the care of any waters" who "has reasonable grounds for suspecting that the waters are infected waters, or observes any unusual mortality among any fish therein."

The Bill contains the following clause concerning penalties:—

"Any person found guilty of an offence under this Act shall be liable on summary conviction to a fine not exceeding £20, or in the case of a second or subsequent conviction of such an offence, to a fine not exceeding £100; and the Court by whom any person is convicted of an offence under this Act may order to be forfeited any fish, eggs of fish, foodstuffs or articles in respect of which the offence was committed."

. . . . .

Protection of Fresh-Water Fisheries

Pollution of rivers and the dangers to fisheries were discussed at the fifteenth annual meeting of the National Association of Fishery Boards, recently held.

Colonel Ian Forbes, of Rothiemay, President of the Association of Scottish District Salmon Fishery Boards, who was present, said that in Scotland they were suffering considerably from the discharge of crude sewage into the rivers, and there was also great trouble through sawdust from timber cutting and liquid draining from timber piles getting into the rivers. He asked for the co-operation of that association in dealing with the matter.

On the question of the Rivers (Prevention of Pollution) Bill, Mr. C. N. Hooper explained the present position, which was that after being on the stocks for two years this Bill, a private member's measure, was in abeyance mainly because, unless there was a very large measure of agreement between all the interests concerned, there would be little chance of its enactment. They had been endeavouring to meet all the objections to it, and were in negotiation with the F.B.I. and the Municipal Corporations Association on points of principle they had raised, and were hopeful of being able to produce an agreed Bill. It was one of the vital recommendations of the Royal Commission on Sewage Disposal, supported by other bodies.

There was a resolution on the paper asking for an inquiry as to the result of the action taken to secure the adoption of safeguards against the pollution expected to arise from the subsidised production of motor spirit, and on this the Chairman expressed the view that when the Government gave a subsidy or its equivalent to any industry they should take care that what was being done was not going to affect other industries prejudicially. It ought not to be left to chance and then when injury was caused for those who were injured to have to take action in their own defence. They did not want to be in the position of having to fight other industries, but to work in co-operation with them, which they could do if adequate safeguards were introduced at the outset.

The Ministry adopted the position that, pending the enactment of more drastic measures for the prevention of pollution of rivers, they must depend upon the existing provisions against pollution and the activities of those whose duty it was to enforce them. That was not fair to the fisheries boards.

In the subsequent discussion strong fears were expressed that the "subsidised production of hydro-carbon oils manufactured in the United Kingdom from coal and other products" would reintroduce in exaggerated form the pollution that followed the subsidy granted to the manufacturers of beet sugar, and if that were so the destruction of fish would be colossal.

The resolution was agreed to.

Reviews

[**"Veterinary Hygiene."** R. G. Linton, ph.d., m.r.c.v.s. Second Edition, revised and enlarged (Edinburgh Veterinary Series). W. Green and Son, Ltd., Edinburgh. Price 21s. net.]

We welcome the second edition of this most useful work, which has been increased from 415 to 462 pages, and illustrations from 92 to 129. There has been considerable revision throughout the book, which has very much improved what was already acknowledged as the leading text-book on this subject. It is difficult to select particular points of revision for reference, but possibly the chapter on Buildings and Construction is outstanding in this connection, as it has been enlarged from 82 to 119 pages, is a very excellent resumé of all the various principles involved, and is well illustrated with additional diagrams of pens for fattening cattle, Scandinavian piggeries, etc. The chapter on Sanitation has been almost doubled and a complete account of up-to-date methods of the treatment of sewage and its disposal has been included, while the dangers of sewage are discussed in this chapter, as well as the effects of sewage pollution of water in the section on water. A slight correction will be necessary in reference to the watering experiment carried out at the Research Institute of the Royal Veterinary College, London, by Minett, Wooldridge and Sheather, with the reference "*Journal of Comparative Pathology*, 1933 (in Press)." The reference will need to be corrected to "*Veterinary Record*, Vol. 14, No. 6, page 147, February 10th, 1934."

As indicated in the preface, a portion of the section dealing with preventable diseases has been omitted, but "Diseases Notifiable in Great Britain" have been retained. The section on Sanitary Law has been omitted. An important and welcome section has been introduced dealing with the housing of dogs and of poultry and an account of the more common diseases of the latter.

In a work of this kind it is difficult to know where to stop, but probably a chapter on "bedding" might have been included with advantage.

The work again will be regarded as the outstanding text-book for veterinary students, and will be found invaluable for practitioners in dealing with almost any matter involving Veterinary Hygiene, Sanitation and Housing.

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Hutchinson's "Dog Encyclopædia."—We have received Part I of this serial publication on dogs, published by Messrs. Hutchinson at 7d. This popular work has an attractive appearance and its text and numerous illustrations will afford both instruction and entertainment to owners, breeders and exhibitors of dogs.

Register of Veterinary Surgeons

The Register of Veterinary Surgeons for 1934 is now issued, and copies will be despatched shortly to all members on payment of the annual fee. The volume has undergone extensive revision, and the contents have been arranged in a more logical order. There is an increase of 30 in the roll of members, the total registered being 3,409, as against 3,379 in 1933. The list of registered "Existing Practitioners" has decreased from 31 to 28. A slip is circulated with the Register giving the names of seven members whose addresses are unknown to the Registrar, and these names will be removed from the roll if an address is not furnished within the current year. The names are W. J. Cooper, H. P. Fox, R. Gregg, F. J. Hyland, A. E. Massey, S. G. P. L. Richardson and J. R. Welsby. Seven names of members have been removed from the Register for this cause during the past year.

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Horse-Sense and Horsemanship of To-day*

This is a new edition of Lieut.-Colonel (now Brigadier) Geoffrey Brooke's book, first published in July, 1924. The book has been considerably revised and enlarged, and is well illustrated by photographic plates of horses and ponies taken from actual life. It is safe to say that there is no more authoritative book on the training of hunters and polo ponies. The author is a past master in this matter, and he has a happy knack of putting his ideas into words which can be easily understood by the novice and the experienced horseman alike. As he wisely remarks, "Horse Sense and Commonsense are synonymous terms and the man who treats his horses as he would treat human beings will seldom be amiss in his judgment. 'Horse Tact' is that rare quality that enables a horseman instantly to put himself on the best terms with whatever horse he may bestride. Both may be acquired with study and experience by anyone who has a love of horses."

The book is a classic text-book and should be possessed by all polo players, riding instructors, and sportsmen generally who have to do the training of their own animals, rendering them efficient in that sphere of service to which they are called, whether it be in the hunting field, the polo ground or in the show ring.

*Horse-Sense and Horsemanship of To-day. By Lieut.-Colonel Geoffrey Brooke, d.s.o., m.c. (Constable and Co., Ltd., 10-12, Orange Street, W.C.2. Price 15s. net.)

DISEASES OF BEES

As a result of co-operation between the bee keepers of England and the Agricultural Research Council financial arrangements have been made to carry out at the Rothamsted Experimental Station an investigation of foul brood diseases of bees. Dr. H. L. A. Tarr has been appointed as investigator.

N.V.M.A. Divisional Report

CENTRAL VETERINARY SOCIETY

"NAVICULAR" DISCUSSION AT THE CONWAY HALL

At a time when a "return to the horse" is a pleasing feature of lay press headlines, it was appropriate that the Central Veterinary Society should follow suit on the occasion of the February meeting of this Division, which was held at the Conway Hall, Red Lion Square, W.C.1, on the first of the month. Moreover, the subject under discussion, "The Diagnosis of Navicular Disease," under the able and attractive introduction of Major Pryer and Professor Macqueen, proved a popular item in the programme of the session, and attracted a good attendance.

The chair was occupied by the President (Mr. H. C. P. King) and the attendance book was also signed by the following: Lieut.-Colonel E. P. Argyle, Captain L. S. Balls, Captain J. W. Beaumont, Mr. W. Brown, Captain R. E. C. Bullen, Mr. H. E. Bywater (Hon. Secretary), Major C. Davenport, Major W. Denington, Lieut.-Colonel H. Greenfield, Mr. J. W. H. Holmes, Mr. R. C. Irving, Mr. H. D. Jones, Mr. Herbert King, Major H. Kirk, Lieut.-Colonel G. P. Knott, Mr. G. H. Livesey, Major Glyn Lloyd, Miss B. L. Lock, Mr. A. B. MacIntyre, Professor James Macqueen, Mr. M. O. J. McCarthy, Dr. J. McCunn, Mr. J. W. McIntosh, Mr. H. G. McShane, Mr. G. K. Miles, Major-General Sir John Moore, Major G. E. Oxspring, Mr. W. Perryman, Mr. C. R. A. Powell, Major F. S. Probyn, Major G. K. Shaw, Major S. L. Slocock, Major R. H. Stalker, Captain R. J. Stow, Mr. M. J. Torres, Captain W. K. Townson, Mr. J. Willett, Mr. R. A. Willett, Professor J. G. Wright and Professor G. H. Wooldridge. The visitors, who included a large number of senior students from the Royal Veterinary College, were as follows: Messrs. C. S. Adams, D. R. Balcombe Brown, R. W. L. Chesney, C. M. Finke, E. K. Finke, H. E. Gibbs, D. A. Green, Miss G. Heap, Messrs. D. L. Hughes, L. E. Hughes, M. J. le Lacheur, J. W. Maffey, L. C. Murphy, W. H. Newey, C. R. Parsons, J. S. Paterson, C. G. Pearce, T. E. G. Rutter, C. V. J. Scorgie, T. F. Stokes, O. Uvarov, C. R. W. Wells and P. L. Williams.

Consideration of the minutes of the January meeting was deferred, pending their publication in *The Veterinary Record.*

Correspondence.—(1) From Sir Frederick Hobday, Mr. H. L. Roberts, Captain J. F. Macdonald, Captain S. Villar, Mr. B. O. E. Walpole and Mr. T. L. Wright apologising for their inability to attend the meeting.

(2) From the British National Committee of the Twelfth International Veterinary Congress, announcing the establishment of a fund to provide some financial assistance for members of the veterinary profession in this country who would be willing to attend the Congress, but who, in view of the heavy cost entailed, might not feel themselves in a position to do so. The letter intimated that seven British veterinarians had been selected to read papers and that a strong representation was highly desirable in the interests of the prestige of British Veterinary Science. A sum of not less than £1,000 was deemed necessary, and it was hoped that the Division would both contribute to the fund and bring the appeal to the notice of individual members.

The President announced that, at a meeting of the Council of the Society held that afternoon, it was decided to postpone consideration of that matter for further consideration in Council, who would report subsequently to general meeting.

(3) From the Secretary of the National Veterinary Medical Association, stating that it had been proposed that the whole question of independent membership of the parent body and its Divisions should be considered by the Council of the Association, and requesting to be supplied with a list of the members of the Society.

The Hon. Secretary asked that, in order that accurate compliance might be made with this request, any members who were aware of any alterations that should be made in the printed list of members, should inform him of them.

Elections.—The following were elected as Fellows of the Society: Miss C. M. Ford, 58, Valliers Wood Road, Sidcup, Kent (proposer, Captain J. F. Macdonald; seconder, the Hon. Secretary); Mr. F. Land, 20, High Street, Bow, E. (proposer, Lieut.-Colonel J. W. Rainey; seconder, the Hon. Secretary); Captain John Smith, Woodleigh, Kenley Lane, Kenley, Surrey (proposer, Captain L. S. Balls; seconder, Dr. J. McCunn); and Mr. B. O. E. Walpole, "Burleigh," Cromwell Avenue, Highgate, N.6 (proposer, Sir Frederick Hobday; seconder, Lieut.-Colonel T. Dunlop Young).

MORBID SPECIMENS AND CASES OF INTEREST

The President introduced this section of the proceedings by informing the Fellows that it had been decided by the Council of the Society that, on that occasion and in future, discussion of morbid specimens must terminate by 7.15 p.m.

Captain L. S. Balls said that, on the previous day, an 18-months-old fox-terrier bitch was brought to his surgery, very emaciated and suffering from ascites. The membranes of the mouth were white, and he diagnosed internal hæmorrhage, and as he thought there might also

be tuberculous lesions he advised destruction. This was carried out, and *post-mortem* examination disclosed ascites, while the capsule of the liver was ruptured and as he passed his finger over the liver he found that a needle was sticking in it. He did not know how long the needle had been there, but it was quite black. One kidney had a tumourous growth that looked very much like a tubercle, but the mesenteric glands were not affected.

Professor G. H. Wooldridge said that he had a specimen to show them which was almost unique in his experience. It was a spleen taken from a fat pig in an abattoir, and, as they would see, was a huge mass rather more resembling a horse's kidney than a pig's spleen. On examining it, the meat inspector found that the splenic artery was twisted on itself several times: it was a case of torsion of the splenic artery. He should say that the torsion did not completely obliterate the lumen of the artery and thus entirely occlude the flow of blood to the spleen, but that the splenic enlargement was due to the interference with the splenic venal flow. On cutting into the spleen there was visible a large infarct, which was commencing to undergo necrosis. An interesting feature of the case was the way in which the omentum had wrapped itself round the spleen, so that it formed a capsule which could not very well be stripped off.

The pig was fat and in every respect in perfect health: there were no signs of tuberculosis anywhere in the carcass, and in case anyone might suspect that a portion of the infarct might be tuberculous, he might say that they took scrapings and, after appropriate staining, examined them microscopically, but failed to find any tubercle bacilli. Moreover, tuberculous lesions did not usually take that form: they were generally more tumour-like masses bulging out of the spleen. The age of the pig was believed to be about 18 months.

Discussion

The Hon. Secretary observed that, with regard to the spleen exhibited by Professor Wooldridge, he could not say how the splenic artery became twisted, but it was almost common in the pig to find abnormalities similar to that one: at least, it was not very uncommon. One often found the spleen itself rotated, occasionally one portion of the spleen being perfectly normal and the other much enlarged, as in the specimen shown. With regard to the area of necrosis of the spleen, that was interesting, and he once saw the kidney of a pig, much enlarged at one extremity, which had an infarct similar to that one. He forwarded it to Sir John M'Fadyean because, in his ignorance, he did not recognise it as an infarct but thought it was a tumour formation. Sir John informed him that the condition was one of necrosis following an infarct of the kidneys. Concerning the specimen exhibited by Captain Balls, he had not examined the lymphatic glands, but it did not strike him as being a case of tuberculosis. There was a peritonitis with exudate, but it was not of the character associated with tuberculosis. The bile ducts were certainly enlarged.

Paper.—There being no further discussion, the President called on Major A. A. Pryer, D.S.O., M.R.C.V.S., to present his paper, "The Diagnosis of Navicular Disease," which was illustrated by some beautifully mounted specimens and X-ray photographs: to this end, also, the essayist had with him a number of films and slides, but unfortunately no lantern was available. Following the reading of the paper, Professor Jas. Macqueen opened what proved to be a well-sustained discussion. [Major Pryer's paper, and a report of the discussion, will be found at the commencement of this issue.—Ed., *V.R.*]

Votes of Thanks.—At the termination of the discussion and the essayist's reply, the President, from the chair, proposed a hearty vote of thanks both to Major Pryer and Professor Macqueen, and this was carried with acclamation. The President, also, was thanked for his conduct of the meeting, and a similar tribute was paid to those who had brought *post-mortem* specimens. In the latter connection, the President announced a decision of the Council that *post-mortem* specimens should be brought a quarter-of-an-hour before the commencement of the meetings of the Society, in order that they might be suitably displayed and examined prior to the starting of the business. As he had informed the Fellows earlier, they would, as hitherto, be discussed later in the proceedings, but that discussion must terminate at 7.15.

H. E. Bywater, *Hon. Secretary.*

E. E. Tyzzer, of the Harvard Medical School, announced at the autumn meeting of the National Academy of Science, the production of a vaccine that is successful in the prevention of blackhead in turkeys. Dr. Tyzzer succeeded in propagating the *Histomonas meleagridis* on artificial media. When thus grown, the organism is in time attenuated until it will not produce the disease, but does bring about immunity in young turkeys. Dr. Tyzzer, however, held out little hope of immediate availability of the vaccine, stating that "There are, at the present time, practical difficulties that prevent the adoption of the procedure for commercial purposes."

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A complete skeleton of a whale, believed to be the largest articulated specimen in any museum in the world, has been hoisted into position in the new Whale Hall at the Natural History Museum, South Kensington. Weighing over ten tons, the skeleton is 82-ft. long; it is that of a young female Blue Whale and, if fully grown, might have measured as much as 100-ft.

The whale was stranded on the Wexford coast of Ireland in 1891, and the sections of the skeleton have for many years been kept at South Kensington awaiting the provision of sufficient space for its exhibition.

"N.V.M.A." Motor Insurance Scheme

Judging by the number of replies and enquiries received in response to the President's letter announcing the inauguration of the scheme, members would appear to be keenly appreciative of the advantages and special facilities it affords them. A substantial number of policies has been issued already, in spite of the fact that February is one of the slowest months for motor insurance business. March and April should produce a considerable influx of further business, having regard to the number of advance enquiries received, which will be dealt with in rotation by personal letters to each enquirer setting out the exact terms of the policy that will apply.

A remarkable feature is the very high proportion of Proposers who are entitled to the Transfer No Claim Bonus. The "N.V.M.A." Policy allows immediately a No Claim Bonus in the same *percentage* as is earned on expiry of the member's present policy. Some members have incorrectly deducted the actual *amount* of the bonus due under their former policy; others have overlooked this feature entirely and sent a cheque for the full premium, which is the best course to adopt if there is any doubt on the subject, as the omission is immediately noted by the Insurance Department, the correct bonus claimed on behalf of the member and a cheque for the amount promptly despatched to him. Actually, the calculation of the Transfer No Claim Bonus is a very simple matter, *e.g.*: A member is paying, say, £15 12s. 6d. premium on a 13·9 h.p. car and his Renewal Notice allows a Bonus of £2 6s. 10d., making the net renewal premium payable **£13 5s. 8d.** It follows that the rate of bonus to which he is entitled is 15 per cent. and, therefore, the corresponding "N.V.M.A." premium of £11 4s. is likewise reducible by 15 per cent., so that the first premium payable under the "N.V.M.A." scheme will amount to only **£9 10s. 5d.** It should be noted that the scale of bonus under the "N.V.M.A." Policy is 15 per cent. the first year, rising to 25 per cent.; as compared with the scale under the average policy of 10 per cent. the first year rising to 20 per cent. only.

Certain members have written to say that their present policies expire on a certain date, when they will avail themselves of the superior protection and benefits afforded by the "N.V.M.A." Policy, but, meanwhile, they hold the ordinary private car policy and is it really necessary that they should advise the present Insurance Company if they allow a partner or assistant to use the car on professional work? The answer is an emphatic "YES." The ordinary private car policy covers use by any person other than the Insured for "private, social and domestic purposes" only. If an assistant or partner uses the car for professional or business purposes under such a policy, the car actually is on the road *uninsured* and, under the Road Traffic Act, the owner is liable to a fine of £50, and/or six months' imprisonment.

It is hoped that every motorist member of the Association, before renewing any existing policy, will very carefully compare the range of protection, benefits and premium rates arranged for his special benefit under the "N.V.M.A." Policy. A copy of the prospectus and very full information can be obtained from the Managers on behalf of the Association, S. H. Cannon and Co., Ltd., 3, Bucklersbury, London, E.C.4, or from the General Secretary of the Association.

In Parliament

Protection of Animals Bill

In the House of Commons on Monday last Sir R. Gower presented the Protection of Animals Bill to provide further protection to animals and for the prevention of unnecessary suffering thereto.

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Coal Mines (Protection of Animals) Bill

The above Bill, "to amend certain provisions of the Coal Mines Act, 1911, relating to the care and protection of horses and other animals used in mines," was presented to the House of Commons on February 26th by Sir Robert Gower; supported by Sir George Jones, Sir Cooper Rawson, Lieut.-Colonel Moore, Mr. David Grenfell, Mr. Lovat-Fraser, and Sir Wilfrid Sugden—to be read a second time upon Friday, March 16th, and to be printed.

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Milk: Government Policy

Mr. Guy asked the Minister of Agriculture if he will endeavour to enlist the support of the medical profession in his campaign for securing a pure milk supply and an expansion of the liquid milk consumption of the country?

Mr. Elliot: Yes, Sir, certainly.

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Export of Horses

Mr. Elliot, Minister of Agriculture, in reply to Colonel Broadbent: In all, 3,179 horses were exported to the Continent of Europe during 1933. I have no precise information of the numbers exported for slaughter, but the number of horses over eight years of age which were notified to the Ministry's inspectors as being shipped for immediate slaughter on arrival abroad was 182. Of these 174 were shipped to Rotterdam and eight to Antwerp, but I am not aware of the actual places of slaughter. In the Netherlands, the use of the mechanical killer for slaughter at all public and private slaughterhouses is required by law, while in Belgium the use of mechanical killers is general. I have no reason to think that the horses shipped from this country are not slaughtered humanely, or that they are subjected to avoidable suffering. All vessels carrying horses from Great Britain have to be fitted in accordance with the requirements of the Ministry's regulations.

In reply to Mr. Lockwood: During the three months ended January 31st, 1934, 143 horses over eight years of age were exported to the Continent of Europe with certificates of the Ministry's inspectors that they were fit to travel and to work without suffering. No horses which could be described as decrepit would be passed for shipment. Of the 143 horses mentioned, 67 were notified to the Ministry's inspectors as being shipped for immediate slaughter on arrival abroad. The other 76 consisted of thoroughbreds, hunters, polo ponies, trotters, circus and other show animals. I do not think a case has been established for further legislation on the subject.

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The Musk Rat

Mr. Elliot (in reply to Captain Heilgers): Very few musk rats are now being caught in either of the two infested areas of Salop and West Sussex, and there is good reason for hoping that the situation is under control. The work of searching and trapping in and around the infested areas will be continued.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

March 12th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

March 16th.—Meeting of the Midland Counties Division, N.V.M.A., at Birmingham.

March 17th.—Annual General Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne.

March 22nd.—Annual Meeting of the Western Counties Division, N.V.M.A., at Exeter.

April 1st.—Annual Fees payable to R.C.V.S.

April 4th.—R.C.V.S. Committee Meetings.

April 5th.—R.C.V.S. Committee Meetings. 7 p.m.—**Annual Dinner** at Mayfair Hotel, Berkeley Square.

April 6th.—R.C.V.S. Committee and **Council** Meetings.

April. 9th.—N.V.M.A. Committee Meetings.

April 10th.—N.V.M.A. Committee and **Council** Meetings.

May 10th.—Last day for nominations, R.C.V.S. Council Election.

May 24th.—Voting papers issued, R.C.V.S. Council Election.

May 31st.—R.C.V.S. Council Election, voting papers to be returned.

June 7th.—**R.C.V.S. Annual General Meeting.**

July 30th-Aug. 3rd, 1934.—National Veterinary Medical Association Congress, Edinburgh.

Aug. 13th-18th, 1934.—Twelfth International Veterinary Congress, New York.

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R.C.V.S. COUNCIL ELECTION

We are informed that the proposer and seconder of Mr. Alfred MacKenzie, of Market Drayton, for election to Council, R.C.V.S., are Messrs. G. H. Locke and Richard Hughes, respectively, and not Messrs. H. Dawes and Mark Tailby, as stated in our last issue.

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PERSONAL

On Leave.—The list of Colonial Service Veterinary Officers arriving on leave from the Colonies and Protectorates, etc., during the month of February, 1934, contained, in addition to the name of Mr. R. Macgregor (notified in a recent issue), those of Major R. Scott-Little, Kenya, and Mr. W. L. S. Mackintosh, and Captain R. W. M. Mettam (Veterinary Pathologist), Uganda.

International Horse Show Appointments.—Sir Frederick Hobday and Major-General Sir John Moore have been appointed as Hon. Consulting Veterinary Surgeons for the forthcoming International Horse Show.

WHOLE-TIME VETERINARY OFFICER FOR DEVON

Devon Agricultural Committee has decided to recommend to the County Council the appointment of a county veterinary officer at £600, rising by £25 annually to £700, with a travelling allowance of £350, to inspect cows and act generally under the Milk and Dairies and the Diseases of Animals Acts and Orders. The total annual cost in the county for the new scheme to assist in the campaign for tubercle-free and pure milk, and to increase demand will be £1,400 per annum.

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SHEEP SCAB IN NORTH WALES

Sheep scab outbreaks in North Wales are causing concern to the Ministry of Agriculture. Until recently, with the exception of Merioneth, Wales was almost immune from the disease. Mr. Fewings, the Ministry's Superintendent Veterinary Inspector for Wales, in conjunction with the Farmers' Union and the Chief Constables of six North Wales counties where the double-dipping order exists, is arranging two instructional demonstrations in each county in the preparation of dipping baths and the handling of sheep in the baths.

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HUNTERS' SOCIETY AND THE WAR OFFICE GRANT

Lord Digby, presiding at the annual general meeting of the Hunters' Improvement and National Light Horse Breeding Society, at the Royal Agricultural Hall, Islington, on February 28th, referred to the grants of £4,500 from the War Office and £2,000 from the Racecourse Betting Control Board, which had enabled the society to continue their scheme of encouraging light-horse breeding by the award of premiums for thoroughbred stallions. The letter which the society had received from the War Office, he said, gave them hope that the grant would be renewed in the next few years. Alluding to the society's increased membership, he appealed for further support from those interested in foxhunting.

The report of the council was adopted, and it was announced that Lord Fortescue would be president for the ensuing year, and that the Duke of Gloucester had consented to be president in 1935.

Mr. George Dickinson expressed his regret that no steps had been taken to prevent disease being introduced into the country by imported horses, and he urged the society to make representations to the Government on the matter. With regard to the allocation of premiums, he suggested that more consideration should be given to horse-breeding in Lancashire, Westmorland, and Cumberland, where many of the best horses had been bred.

Lord Digby, replying, said he hoped that in the future there would be sufficient premiums to enable them to do more than at present. He pointed out that before they could allocate a horse to a district there must be at least 50 mares in the area.

Among those to be elected members of the council (to serve for a period of three years) was Major-General Sir John Moore, K.C.M.G., C.B., F.R.C.V.S.

Lord Mildmay of Flete expressed the thanks of the society to Lord Digby for his services as president.

Champion Cup Won by the President

Lord Digby, who during his year of office as president of the Hunters' Improvement and

National Light Horse Breeding Society has worked strenuously to further the society's work and to secure the renewal of the War Office horse-breeding grant, to which reference is made above, was cordially congratulated on Thursday of last week at the Hunter Show, when he won the Prince of Wales' Champion Cup for the best young hunter with his bay gelding Easter Vision.

His horse had made an excellent display in the two-year-old class for colts and geldings, and it was confidently anticipated that he would carry off the cup. The championship carries with it the society's gold medal for the best young hunter. Lady Digby entered the ring and presented the trophy to her husband.

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NATIONAL PONY SOCIETY

Success attended the annual two-day show of the National Pony and the Arab Horse Societies, whose combined efforts have kept alive many of Great Britain's native breeds of ponies, which was held at the Royal Agricultural Hall, Islington, on March 2nd and 3rd.

There was a gratifying number of exhibits of most of the favourite breeds. Sir Ian Walker, the President of the show, was one of the most successful exhibitors. He achieved a similar distinction to that of Lord Digby, President of the Hunter Show, who the previous day won the young hunter championship trophy.

A serious position had arisen with regard to the maintenance of the Mountain and Moorland breeds owing to the withdrawal of the Government grant for stallions, but the outlook is now more hopeful since the War Office has decided to make a grant of £500 to encourage breeding.

A representative of the War Office met members of the National Pony Society, and it was agreed that £450 should be divided among the following breeds: Pembroke Roadsters, £100; Welsh Cobs, £100; Fell ponies, £130; and Dales ponies, £120. The remaining £50 will be used to assist the breed of Cleveland Bays.

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FAMOUS FELL PONY DEAD

Dalesman, the Dunure Footprint of the Dales and Fell pony breeds, has died. He was aged 33 years, and owned by Mr. John Relph, Turnbank, Newby, Penrith. He was the sire of more good Fell and Dales ponies than any other stallion. Bred in the Fell pony country of Fell stock, he was registered as a Dales pony and was as valuable to the one breed as to the other. "Dalesman," says *The Scottish Farmer*, "was full of real pony character in combination with the weight of a cob. His abundant vitality was inherited by his offspring. It was not only as a sire but as a show pony that Dalesman was supreme, though his showyard career was not on the same scale as his stud record. At the Royal Show at Newcastle in 1923 he was yet, as 21 years old, fit to win the class for Dales pony stallions; a grand-daughter was a winning mare. Dalesman held Board of Agriculture premiums for years. It was in 1912 that premiums were first granted for Fell pony stallions; Dalesman was one of the original four. Later he travelled in the Dales country. In the years 1922, 1923 and 1924 his progeny, in a grand-daughter and a daughter, won the championship for brood mares of all mountain and moorland breeds at the National Pony Show in London. His progeny have included some of the best stallions of both the Fell and Dales breeds; at least five stallions by him have gone to Spain; another went to head a stud in the United States; His Majesty the King has a grand-daughter, Linnel Fluff, which won the Sir Arthur Cecil Memorial Cup at the London Show in 1932. In short, Dalesman was one of the most outstanding ponies that have ever travelled the North of England."

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HORSE RIDING OVER BANSTEAD COMMONS PROHIBITED

It is stated that the Banstead Commons Conservators have decided to enforce their bye-laws which prohibit the riding and exercising of horses over the open spaces regulated by them. In recent years horse riding has become very popular and has resulted in a considerable increase in the number of riding schools in the vicinity of the Banstead Commons.

The Conservators announce that they have felt reluctant to do anything to interfere with a healthy and delightful exercise, but the extensive damage being done by riders, the majority of whom do not live in the district, has compelled them to adopt measures to restrain those who ride anywhere and anyhow over commons which are regulated in the interests of all sections of the public.

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ARMY VETERINARY SERVICE

Movements of Officers

Major H. Bone, M.C., returned to this country from India on February 12th, and has been posted to Newport, Mon., for duty.

Captain C. U. K. Porter, who reverted to the Home establishment on expiration of leave *ex* India with effect from February 14th, is now doing duty at Bulford.

Lieut.-Colonel H. C. Dibben and Lieut. J. A. Langley sailed for India on February 14th, for a full tour of duty abroad.

Major R. E. Bond is being posted to the Northern Command for duty on March 14th, from Aldershot.

Major K. S. Simpson is being posted from the Northern Command to Aldershot for duty on March 16th.

Major V. C. Leckie, D.S.O., will proceed to York on March 14th, and will officiate as A.D.V.S., Northern Command, during the absence on leave of Lieut.-Colonel F. C. O'Rorke, C.M.G.

Major G. Barnett, M.C., is at present in this country on leave from India.

Major G. V. Golding is at present in this country on leave *ex* India until April 6th next, when he will join the Northern Command for duty.

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WHIST DRIVE IN AID OF THE "VICTORIA BENEVOLENT"

The Victoria Veterinary Benevolent Fund was the charitable object of a very successful whist drive organised by Mrs. J. F. Craig, which was held in Jury's Hotel, Dublin, on January 31st last. The function was well attended and a very enjoyable evening was spent. A large measure of the success of the drive was due to the active interest in it taken by Mrs. O'Connor, Mrs. Lambert, Miss Norris, Mrs. Browne and Mr. N. H. Lambert. The prizes presented during the evening were supplied from contributions kindly made by Professor Dunne, Messrs. J. H. Norris, S. Cussen, A. A. Donnelly, T. Kellett, F. Daly and Brady and Mrs. Lambert.

The resources of the Fund have been augmented by the sum of £19 17s. as a result of this pleasant event.

H.M. STATIONERY OFFICE PUBLICATIONS

The undermentioned have been published recently. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses: London: Adastral House, Kingsway, W.C.2, and 28, Abingdon Street, S.W.1; Cardiff: 1, St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120, George Street.

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COMMAND PAPERS.		
[4503.] Medical Research Council. Report for the year 1932-33	2 6	2 9
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193. Dissecting Aneurysms. December 19th, 1933. (45-9-93)	2 6	2 9
SCIENTIFIC AND INDUSTRIAL RESEARCH:—		
Food Investigation Board:—		
Index to the Literature of:— Vol. 5. No. 1, March, 1933; No. 2, September, 1933. (47-71-9)	5 0	5 4

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BRITISH ASSOCIATION PRESIDENT

At a general committee meeting of the British Association for the Advancement of Science Sir James Jeans was elected President for the year, in succession to the late Sir William Hardy.

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ROYAL SANITARY INSTITUTE CONGRESS

Among the Presidents of the various sections and conferences in connection with the Health Congress of the Royal Sanitary Institute, which is to be held this year at Bristol from July 9th to 14th, are the following: Professor J. T. Share-Jones, D.V.SC., M.SC., F.R.C.V.S., the Director of Veterinary Studies at Liverpool University (Veterinary Hygiene Section); Professor W. W. Jameson, M.A., M.D., F.R.C.P., D.P.H., the Dean of the London School of Hygiene and Tropical Medicine (Section of Preventive Medicine); and Dr. Charles Porter, the President of the Society of Medical Officers of Health, who will preside over the Conference of Medical Officers of Health.

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"A FRONTIER MANŒUVRE"

Under the above heading *The Morning Post* reports that in a small Bavarian village a farmer had trouble with an ailing cow. There was no German veterinary surgeon within 20 miles, but five minutes away over the frontier there was an Austrian.

The farmer could not take his cow into Austria for there were many difficulties, chief of which was the fine of £50 payable by all Germans who visit that country.

He, therefore, telephoned to the Austrian veterinarian to come as far as the line which marks the frontier. Then he drove the cow to the line, where the V.S., without quitting Austria, gave his advice, and took his fee in reichsmarks.

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R.A.V.C. POINT-TO-POINT CHALLENGE CUP

The Ninth Annual Race for the R.A.V.C. Point-to-Point Challenge Cup will be run this year at the Hambledon Hunt Point-to-Point Races at Liss, Hants. (three miles from Bordon, three-quarters of a mile from Liss Station, Southern Railway), at 3 p.m., on April 21st. Winner to receive R.A.V.C. Challenge Cup, presented by Major-General Sir John Moore, K.C.M.G., C.B., Replica, and 25 per cent. of sweepstake.

Conditions of the Race.—For horses the property of or Government horses hired by officers of the R.A.V.C., serving or retired (Territorial and ex-temporary officers included). Horses to have been in the possession of or hired by those qualified to enter from a date not later than March 1st, 1934, and to have been regularly hunted with a recognised pack of hounds or drag hunt during the season 1933-34. Certificates to this effect, unless registered at Vinton's, to be signed by the M.H. No horse is qualified to run which has ever won a race of any description (Point-to-Point, Bonâ-fide Hunt and Military races excepted). Weights, 12-st. 7-lbs. or over. Winner of Point-to-Point, Bonâ-fide Hunt or Military race since January 1st, 1932, to carry 7-lbs. extra, of two or more such races 10-lbs. extra. To be ridden by those qualified to enter.

Entrance fee: One sovereign.

Entries close on April 11th, 1934.

Arrangements for the stabling and forage of horses, and accommodation of grooms at Aldershot or Bordon will be made on application to the Honorary Secretary at the time of entry.

Officers whose horses are normally stabled outside a radius of 30 miles of the venue, and are starting in the race, will be entitled to a sum up to £4 a horse, equal to the amount of railway fare incurred in sending a horse to and from the meeting.

A Corps Tea Tent is available on the course for the use of officers and their friends. Tickets, price 2s. 6d. each, can be obtained in advance from the Hon. Secretary, or from the R.A.V.C. Tea Tent Office on the course. It is requested, however, that tickets be purchased two weeks prior to the meeting, in order that some idea of the number to be catered for may be obtained.

In order to ensure the success of the race, the committee ask that all officers who are able to do so will make every endeavour to enter a horse. By entering a horse, an officer is entitled to a free car pass on to the course, which normally costs 10s. For entry forms apply to the undersigned.

P. F. WOODLAND, Major, R.A.V.C.,
Hon. Secretary, R.A.V.C. Point-to-Point Association.
Station Veterinary Hospital,
Aldershot, Hants.

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CHICAGO GANGSTERS KIDNAP DOGS

The New York correspondent of *The Times* reports that in Chicago, "whose misfortune it is to have not more crime than other American cities but more versatile criminals," gangsters are now kidnapping not men but dogs. The latest victim of their activity is "Kid Boots Ace," a prize-winning Boston terrier. He was stolen from his owner, Mr. Louis Rudginsky, of Boston (Mass.), who was notified by telephone that the dog was being held for a ransom of $500 (£100). He informed the police and nothing has been heard from the kidnappers since.

The Editor acknowledges, with thanks, the receipt of the following:—

Communication from Captain A. W. N. Pillers (Liverpool).

Reports of meetings of the South-Eastern and the Eastern Counties Divisions, N.V.M.A., from Major T. Dalling and Mr. H. P. Standley, junr., respective Hon. Secretaries.